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TRADE AND INDUSTRIAL POLICY FOR SUSTAINABLE RESOURCE-BASED DEVELOPMENT: POLICY ISSUES, ACHIEVEMENTS AND PROSPECTS

Report prepared for UNCTAD
by

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PREFACE

The first section of this paper was jointly written by the two authors. Sections 2.1 and 3 were written by David Evans and Section 2.2 was written by Richard Auty. The research assistance was carried out by Ismail Ahmed, Will Campbell and Jonathan Perraton. Their assistance is gratefully acknowledged. Comments on the first draft from Philip Daniel and the Commodities Division at UNCTAD are gratefully acknowledged. Any remaining errors in the text remain the responsibility of the authors.

SUMMARY

The purpose of this study is to assist mineral exporting economics address the linkages between macroeconomic policies and trade and industrial policies within the context of sustainable development. Thirty mineral exporting economies were defined using a broad-based criterion those developing countries which are not in capital surplus and whose mineral exports are more than 20% of total exports.

The study is divided into three parts. Section 1 sets out the issues to be further developed, suggesting a focus for further exploration on real exchange rate instability and trade and industrial policies. Section 2.1 explores these issues using cross-sectional statistical methods for the sample as a whole, and section 2.2 explores them in the context of a smaller set of case-study countries. The findings of sections 2.1 and 2.2 are assessed in section 3 in the context of the requirements for sustainable growth in mineral exporting economies.

The evidence presented in the main body of the report in section 2, the further evidence provided in section 3.2, and the discussion of sustainable growth in section 3.3, suggest that the main findings of this report can be summarized as follows:

(i) Macroeconomic Policies

The overwhelming finding of this study is the strong empirical link between real exchange rate variability and a lower growth performance. It is unlikely that this result, obtained by cross section analysis, would be overthrown by proper measurement of the contribution of mineral resources to sustainable growth since similar influences are likely to be operating for all countries in any one of the three time periods examined. It follows that the first and most important policy focus for sustainable growth should be on macroeconomic policies which lower the variability of the real exchange rate over time. In this context, the issue of a resource rent stabilisation fund to help iron out the worst of the short-run Dutch Disease effects is essential, combined with consistent monetary, fiscal and money exchange rate policies.

(ii) Investment for Sustainable Growth

Mineral exporting economies have under-invested in growth for the future. This can be seen, for example, in the comparison of investment shares in GDP for mineral exporting economies with appropriately defined Syrquin-Chenery norms based on averages for all developing countries. Thus, there is a case for increasing the investment share of income in these economies through effective resource rent taxation and other forms of taxation, as well as private, domestic and foreign savings. A broadly based approach to sustainable growth suggests that proper accounting of mineral stocks and flows and of human capital stocks and flows is likely to provide a more accurate view of sustainable growth over time. An important part of a sustainable growth strategy in mineral exporting economies is likely to include an emphasis on investment in human capital. The ecologically based sustainable growth literature, by measuring environmental degradation only, imparts a bias to the policy implications of the sustainable growth literature which may be unwarranted.

(iii) Trade and Industrial Policies

This report found no quantifiable association between high protectionist trade and industrial policies and inadequate macroeconomic policies measured by the degree of real exchange rate variability. In the case studies, qualitative support was found for the effectiveness of trade and industrial policies in the context of macroeconomic stability. However, the lack of any clear cut findings on the effect of selective trade and industrial policies on growth, whilst not entirely a surprise, leaves a gap to be filled in for the case study work, on the systematic quantification of the effects of selective trade and industrial policies. To the extent that trade and industrial policies are a part of a package which seeks diversification out of the mineral sector in line with dynamic comparative advantages, this can be worthwhile, but this study was not able to provide systematic quantitative evidence of the success of such policies in increasing sustainable growth.

CONTENTS

Page
PREFACE 2
SUMMARY 3

SECTION 1 MANAGING MINERAL ECONOMIES: THE ISSUES 7
1.1 Introduction 7
1.2 The overall performance of mineral economies 7
1.3 Managing mineral economies 9
1.4 Mining linkages and mineral-driven development 12
1.4.1 Linkages from capital-intensive mining 12
1.4.2 Dutch disease and sectoral rigidity 13
1.5 The leading policy issues 14
1.5.1 Macroeconomic policy issues 14
1.5.2 Trade and industrial policy issues 15
1.5.3 Macroeconomic, trade and industrial issues to be pursued 17

SECTION 2 ACHIEVEMENTS OF MINERAL EXPORTING ECONOMIES 19
2.1 Performance of mineral economies 19
2.1.1 Growth and structural dimensions 19
2.1.2 Policy-induced influences on growth 26
2.2 Case studies of mineral economy performance 49
2.2.1 Introduction 49
2.2.2 The oil cycle in Indonesia and Nigeria 1970-90 49
2.2.2.1 Economic performance: policy versus pre-conditions and shocks ... 49
2.2.2.2 Boom responses: 1974-82 50
2.2.2.3 Downswing adjustment 1982-92 55
2.2.3 Downswing adjustment in mid-income Chile and Peru 1970-90 58
2.2.3.1 Macroeconomic policy: shifts to orthodoxy 1973-82 60
2.2.3.2 Macroeconomic policy: responses to the debt crisis 61
2.2.3.3 Sectoral policy: Chile's linear liberalization 62
2.2.3.4 Sectoral policy: Peruvian regression 63
2.2.4 Resource based industrialization in Venezuela 67
2.2.4.1 Over-rapid windfall absorption 67
2.2.4.2 RBI performance 68
2.2.5 Slow diversification in Jamaica 70
2.2.5.1 Mismanaged mineral rents 70
2.2.5.2 Postponed macroeconomic adjustment 72
2.2.5.3 Tardy diversification 73

2.2.6 Unsustainable development in Zambia 74
2.2.6.1 Cumulating macroeconomic problems 74
2.2.6.2 Inadequate diversification 75
2.2.7 Conclusion 79

SECTION 3 PROSPECTS FOR IMPROVED ECONOMIC PERFORMANCE 79
3.1 The argument to date 80
3.2 The concept of sustainable growth 82
3.3 Sustainability in mineral exporting economies 83
3.4 Policy conclusions 83

REFERENCES 85

APPENDIX I Growth performance 1960-1990: Real per capita GNP by country
Charts A1.1 to A1.30 89
APPENDIX II Official and Black Market Exchange Rates: 1960-1989.
Charts A2.1 to A2.30 105

1. MANAGING MINERAL ECONOMIES: THE ISSUES

1.1 INTRODUCTION

1. The aim of this study is to assist mineral exporting developing countries to address trade and industrial policy issues within the context of a sustainable development strategy. It extends recent work on macroeconomic policies and conditions [see for example Daniel (1992)] to consider in particular the interaction between exchange rate policy and trade and industrial policies and the capacity of government to implement consistent trade and industrial policies without engendering gross rent-seeking activity. These issues are also explored in the context of several country case studies, seeking to establish the extent to which the more general findings are replicated or contradicted in a case study context. The final section of the study develops the argument that successful macroeconomic management is a pre-requisite to establishing sustainable development.

1.2 THE OVERALL PERFORMANCE OF MINERAL ECONOMIES

2. Mineral economies are defined as those developing countries which generate at least 20% of their export earnings from the mineral sector for at least half of the period from 1966 to 1991. Capital exporting countries such as Saudi Arabia were excluded from the sample, as were major gold exporters such as South Africa, since gold exports are not identified as mineral exports in the trade statistics. On this broad trade-based criterion, mineral economies comprise around one-quarter of all the developing countries, shown in Table 1.1. They include two main categories: the hydrocarbon or oil producers(O), and the hard mineral exporters (H), producers of ores such as copper and tin. The sample has been further divided into 'Young' (Y) mineral economies, whose exports of minerals were below 20% of total exports in the first period, and 'Mature' Mineral economies for those with sustained mineral exports above 20% of total exports for the whole of the period.

3. Compared with other developing countries, the mineral economies on the whole have performed well over the period 1960-90. Thus, the average growth of developing countries shown in Table 1.2 for the period 1960-90 was 4.9% compared with 5.0% for the mineral exporting economies identified in this study. However, the average performance over the whole of the period masks differences between the oil and hard mineral producers from the end of the 'golden age' of post war growth and the onset of the 1973 oil price rise. Whilst the oil producers did markedly better than the hard rock producers in the 1970s, this position was reversed in the 1980s. As can be seen from Chart 1.1, whilst hard mineral producers experienced a relatively steady decline in the real price of their exports throughout the whole of the period, oil producers experienced a sharp rise in the real price of oil in the 1970s with a return of the real price almost back to 1960s level during the 1980s. In the 1980s, mineral exporters performed well below the all-developing country average, but did better than all primary commodity producers.

4. Overall, growth performance of mineral exporters has tended to be inferior to non-mineral economies, and strikingly inferior to manufacturing exporters. This is a counter-intuitive finding since, compared with countries that lack minerals, mining provides the mineral economies with additional foreign savings and taxes which could be used to finance industrialization [see Nankani

TABLE 1.1
SHARE OF MINERALS [a] IN TOTAL EXPORTS

(per cent)

Countries	1966-68	1970-72	1980-83	1989-91	Young/ Mature	Oil/ Hard
Algeria	71.5	78.6	98.8	96.0	M	O
Angola	7.3	30.1	80.0	94.6	Y	O
Bolivia	100.0	100.0	89.0	71.6	M	H
Botswana	n.a.	n.a.	25.0	16.7	Y	H
Cameroon	13.0	9.7	45.9	59.0	Y	H
Chile	88.6	85.2	62.5	52.6	M	H
Congo	3.9	3.8	89.4	94.2	Y	O
Ecuador	0.8	7.1	59.7	47.2	Y	O
Egypt	5.6	4.5	68.5	35.8	Y	O
Gabon	60.6	60.5	9.1	87.2	M	O
Indonesia	41.9	50.3	76.2	45.5	M	O
Jamaica	56.8	67.4	76.0	59.2	M	H
Jordan	32.0	19.8	24.7	35.1	M	H
Liberia	74.9	72.7	65.9	33.4	M	H
Malaysia	30.9	28.9	35.1	18.9	M	H
Mauritania	91.2	88.7	72.6	47.5	M	H
Mexico	20.1	15.7	78.1	40.5	M	O
Morocco	35.9	31.3	42.8	18.9	M	H
Niger	0.5	12.2	84.3	95.1	Y	H
Nigeria	33.5	73.7	97.3	97.3	M	O
Papua New Guinea	n.a.	6.6	51.4	43.3	Y	H
Peru	51.4	46.2	52.7	50.7	M	H
Sierra Leone	19.5	20.1	7.7	22.6	Y	H
Syria	2.1	20.3	78.5	43.5	Y	O
Togo	40.6	32.5	54.0	46.2	M	H
Trinidad & Tobago	78.6	78.2	90.7	65.5	M	O
Tunisia	37.1	42.8	53.9	18.8	M	O
Venezuela	100.0	96.5	92.4	96.4	M	O
Zaire	79.5	74.3	100.0	63.9	M	H
Zambia	97.0	97.7	100.0	71.2	M	H

Source: UNCTAD

Notes

a/ Includes minerals, ores and metals (SITC, Rev 2, divisions 27, 28, and 68 and item 522.56) 1 and fuels (SITC, Rev 2, Section 3).Gold exports not included in mineral exports Capital surplus countries excluded.

(1979)]. In addition, Resource-Based Industrialization (RBI), the downstream processing of the ore into metal (or the hydrocarbons into petrochemicals) and then into finished products, can provide for an additional route to industrialization which is distinctive from the more usual import substitution route.

5. In order to identify the policy issues for further analysis, this section first examines economic policies in the context of the special characteristics of mineral economics. It is necessary to examine macroeconomic policy before proceeding to microeconomic policy issues because a sound macroeconomic environment is often more crucial in determining growth performance

TABLE 1.2

GROWTH PERFORMANCE OF DEVELOPING ECONOMIES: GDP (GDP Per Capita)

(Percent Per Annum)[a]

	1960-70	1970-80	1980-90	1960-90
Mineral exporters[b]	5.1	6.2	2.3	5.0
	(2.2)	(3.3)	(-0.3)	(2.1)
Oil[c]	5.1	6.5	2.2	5.1
	(2.2)	(3.5)	(-0.4)	(2.2)
Non oil[c]	5.2	4.7	2.9	4.4
	(2.5)	(2.2)	(0.2)	(1.8)
All developing countries	5.8	5.6	3.0	4.9
	(3.2)	(3.1)	(0.6)	(2.4)
Primary	5.6	4.9	1.6	4.2
	(3.0)	(2.3)	(-1.0)	(1.5)
Manufacturing[d]	6.2	6.6	5.1	6.0
	(3.5)	(4.4)	(3.1)	(3.7)

Notes

a/ Least squares trend

b/ 30 countries classified as such in Table 1.1

c/ As classified in Table 1.1

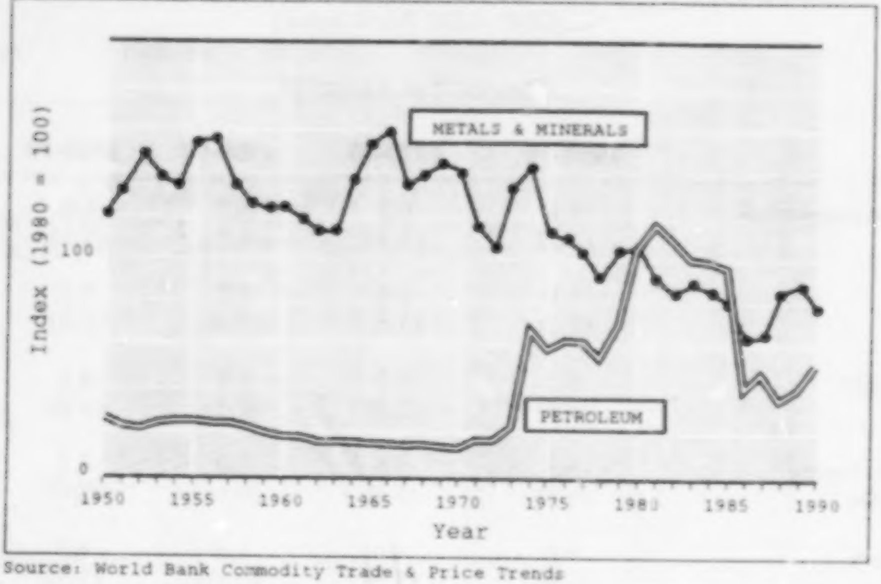
d/ Countries for which manufactures corresponded to more than 50% of total exports in 1988-90 (Bangladesh, Barbados, Brazil, Cyprus, Haiti, Hong Kong, India, Republic of Korea, Malta, Mauritius, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Province of Taiwan, Thailand, Turkey, Uruguay and Yugoslavia).

than trade and industry policies [see for example Helleiner (1993) and Evans (1989) section 9.6)]. The focus then shifts towards policy issues at the microeconomic level, beginning with the linkages arising from the capital-intensive nature of production of most mining operations. The interaction between mining and other sectors of the economy is discussed in terms of the prospects for RBI and the impact of real exchange rate appreciation which accompanies the start of mineral exports or the rise in the price of non-tradeables relative to tradeables. This is often referred to as 'The Dutch-disease' after the adverse effects on the industrial sector in the Netherlands following the discovery of natural gas in the North Sea in the 1960s. The third and final section identifies the critical macroeconomic and microeconomic issues for further analysis in sections 2 and 3 of the paper. The implications of the emerging concern for the sustainability of mineral-driven development are also addressed in section 3.

1.3 MANAGING MINERAL ECONOMIES

6. The mineral economies are unevenly distributed geographically, being most numerous in Latin America, Sub-Saharan Africa and the Middle East. Structuralist economic influence has

Chart 1.1: Mineral Price Trends 1950 - 1990



Source: World Bank Commodity Trade & Price Trends

been especially strong in the first two regions during the post-war period. But more cautious policies have often been adopted by mineral exporters in the Middle East and also by mineral exporters in the main secondary regional concentration, southeast Asia. The Latin American structuralists have advocated an enlarged government role in economic management in general and in sectoral promotion in particular. Their stance has also held considerable appeal to governments in sub-Saharan Africa. The Latin American structuralists argue that the developing countries differ from the industrial ones because their traded sectors display a characteristically lagged response to macroeconomic incentives, notably exchange rate shifts [Schydlowsky (1986)]. According to the structuralists, this is because bottlenecks in the economy hamper the required smooth adjustment to a downswing which a currency depreciation and public expenditure cuts are meant to achieve. Moreover, such measures feed inflation.

7. Schydlowsky (1986) argues that the rapid adjustments which market-based solutions require can be made by very few Latin American economies. His view receives some support from recent research, including work done within the World Bank. That work suggests that the orthodox perspective overestimates the capacity of pre-NIC developing countries to respond flexibly to exchange rate shifts [(Faini and de Melo 1990)]. They hypothesize that expenditure-switching attempts are likely to have little effect due to limited domestic consumption of exportables, and the difficulties in producing substitutes for imports in the short to medium term. The supply response of the tradeables sector may be inhibited by increases in the cost of imported raw materials, and constant real wage costs if indexation is prevalent. The investment response in this sector may be low due to the increased cost of imported capital goods and the climate of macroeconomic instability. Faini and de Melo find the strongest response to devaluation amongst manufactures exporters, a much weaker response amongst primary exporters and a still weaker response amongst fuel exporters, in line with expectations. (Unfortunately, the sample countries

are not reported and no distinction is made between exporters of 'hard' and 'soft' primary commodities). The response of mineral exporting economies to devaluation can be expected to be low on this scheme: domestic consumption of minerals is minimal, the potential for competitive export expansion is limited and the macroeconomic climate may also be unstable. Additionally, Dutch disease effects, considered below, may have substantially weakened the capacity of non-traditional exports to respond to a more favourable exchange rate.

8. In contrast, the orthodox view of those such as Hughes (1992) and Lal (1983) sees past Latin American state intervention as the root cause of the region's economic problems, not the least of which is precisely that rigidity of sectoral response which the structuralists cite in their defence. In the orthodox view, such rigidity arises from state intervention that has been both excessive and misguided. Developing country governments are therefore an important source of the very market failures upon which structuralists base their case against the orthodox approach [(Lal 1983)], a point also made by Bevan et al. (1990) in the context of soft commodity booms.

9. Moreover, since the mid-1980s there has been mounting evidence from research by Sachs (1989), Lago (1990) and Ranis and Mahmood (1992) among others that the structuralists' desire for growth-based redistribution has often prompted counter-productive populist reflations. Sachs (1989) has drawn attention to the recurrence of such populist booms in post-war Latin America and to their self-defeating nature. He ascribes their origin to the large income inequalities characteristic of many Latin American countries and the resulting political pressure to avoid the deflationary and growth-retarding stabilization policies with adverse distribution consequences which a switch to orthodoxy requires. The stylized facts of the populist boom sequence are: an initial surge in real wages and public spending which leads to rapid economic growth as idle capacity is used. However, inflation accelerates and the trade gap widens as imports surge and some exports are diverted to the home market. As inflation rises and the fiscal deficit expands, the loss of business confidence prompts capital flight out of the country. The initial economic growth proves unsustainable and within around four years of the launch of the sequence, incomes fall back below their level at the onset of the populist boom. The recurrence of such counter-productive policies led Lago (1990) to query the existence of a learning curve in Latin American economic development.

10. The above literature suggests that a rich natural resource base (frequently minerals) allows economic disequilibria to cumulate to chronic levels. In this way the natural resource can become a curse, rather than a blessing [(Gelb 1988)]. There are three aspects to this argument. First, import substituting industrialization in economies with a high natural resource endowment will tend to start with a higher wage rate than in economies with low natural resource endowments. In these circumstances, the initial import substituting process can be more difficult than for lower-wage economies. Second, when there is a boom in the prices of resource-based products, there can be a powerful real exchange rate appreciation leading to de-industrialisation. Third, because of the strength of natural resource booms and the large rents thereby created, efficiency constraints can be suspended at boom times leading to a poor investment effort and to the pursuit of poor trade, industrial and macroeconomic policy. Gelb concludes that even strong governments have difficulty resisting pressure both for over-rapid windfall absorption during booms and for delayed adjustment to price downswings. This is why the high costs of downswing adjustment in the aftermath of a boom have, in many countries, swamped any gains that had been made during the booms. It is possible to argue that where political and administrative

institutions are weak, it may be more beneficial to maintain the peculiar enclave linkages of mining and accumulate overseas assets, or even to defer mineral exploitation indefinitely.

11. The orthodox view calls for prompt adjustment to resolve the mineral economies' macroeconomic crises successfully with the exchange rate adjusting downwards to achieve the required expansion of non-mining tradeables during a mineral downswing. The twin policy pillars of macroeconomic orthodoxy (fiscal prudence and a commitment to a competitive exchange rate) do find support in recent empirical studies on the mineral economies [Pinto (1987), Gelb (1988), Auty (1990)]. But the estimation of long-run expected mineral income is exactly what the governments of mineral economies have been unable to perform well. Consequently, errors which adversely affect sectoral performance have frequently occurred in the past and, moreover, are likely to recur.

1.4 MINING LINKAGES AND MINERAL-DRIVEN DEVELOPMENT

1.4.1 Linkages From Capital-Intensive Mining

12. An important reason for high levels of state intervention in the mineral economies is the fact that, historically, mines in developing countries tended to function as economic enclaves. They respond to strong growth stimulus from distant metropolitan regions but their local economic impact was only modest. The reason for the stunted domestic linkages have been contested. The structuralists, whether from the radical dependency school like Girvan (1971) or the more moderate reformist wing like Prebisch, blame the unequal outcome on the nature of international trade between the strong industrial core and the weak developing periphery.

13. More orthodox researchers have attributed the disappointing economic stimulus from mining to the sector's capital-intensity [Auty (1983)]. The latter creates a configuration of economic linkages which has proved especially difficult to harness for domestic economic growth. Of the four sets of economic linkages identified by Hirschman (1977), namely backward, forward, final demand and fiscal, the first three have been disappointing in mineral economies, leaving fiscal linkage as the dominant linkage.

14. In particular, productive linkages for both inputs into mining (backward linkage) and for further mineral processing prior to export (forward linkage) have been very modest. Meanwhile, final demand linkage (the activity stimulated by the domestic spending of the profits and wages (excluding taxes) generated by the mines) has also been small. There are two reasons for this: first, the huge capital investments demanded by most mines have typically depended heavily on foreign capital which creates large external revenue flows to service the equity and loans. Second, spending by the workforce is relatively small because although miners may be highly paid, they are also highly productive so that their number is invariably small and their aggregate spend is modest. Fiscal linkage from mineral taxation has therefore held the most potential for harnessing the mineral resource to improve economic performance.

15. The scale of fiscal linkage was strengthened in the post-war period as the governments of developing countries succeeded in raising the share of taxes in total revenues [Ayub and Hashimoto (1985), Kessel (1977), Mikesell (1975), Thoburn (1977)]. Ironically, the increasingly successful capture of revenues from foreign mining firms brought largely unforeseen problems of making effective use of the taxes for development.

1.4.2 Dutch Disease and Sectoral Rigidity

16. The smooth downswing adjustment anticipated by orthodox macroeconomic theorists neglects the potentially corrosive impact of 'Dutch disease' on the non-mining tradeables, which may be heightened when there is downwards real wage rigidity. That effect will be briefly sketched here, using a three sector model developed by Corden and Neary (1982), extended in Evans (1986, 1989 section 7.7) in a sticky wages context. The Corden and Neary version of the model comprises the lead (mineral) sector, a lagging sector (the non-mining tradeables such as agriculture and manufacturing) and a non-tradeables sector (construction and services). Corden and Neary see two effects at work, the spending (demand-side) effect and the resource movement (supply-side) effect.

17. During a mineral downswing, the domestic spending effect from mineral rents, which may have been very large in relation to the size of the whole economy during the previous boom, falls and causes the price of non-traded goods (mainly services) to fall relative to the price of imports of domestically-supplied traded goods (which are subject to international competition). This real exchange rate depreciation assists agriculture and manufacturing to maintain exports or to compete with imports.

18. The second effect of a downswing according to the Corden and Neary model, the resource movement effect, is triggered by the prospect of higher returns in both the non-mining sector and non-traded services. It takes the form of a shift in labour and, at least in the medium or long term, capital into the previously lagging traded sectors, causing its output to expand. However, when there are sticky wages, the resource movement effects will be dampened by any failure of real wages to adjust downwards. [Evans (1986, 1989 section 7.7)] Such sticky wage effects may arise from the resistance of small highly paid mine workers (often aptly described as a labour aristocracy), from public sector employees paid on the basis of boom-time mineral rents, or both. Sticky wages will result in weaker incentives for mobile capital to move into the non-mining traded sectors and to expand employment. Also, Krugman (1987) argues that competitive activity lost during exchange rate appreciations may not be easily restored during subsequent downswings. Krugman's argument is based on learning by doing in the manufacturing export sector, which is disrupted by the interruption of exports through temporary exchange rate appreciation. This may account for the sluggish response of non-traditional exports to exchange rate devaluation alluded to in Faini and de Melo (1990). Krugman (1989) introduces the further case of export marketing, where time and resources are necessary to establish trading links. This induces exporters to hold on to markets if they perceive an appreciation to be temporary, and would also imply that depreciation will not induce a strong response since firms cannot establish these links quickly or cheaply. These effects are likely to be particularly strong when there are underdeveloped capital markets and small domestic sales of manufactured exports.

19. In the past, the governments of mineral economies have used both the size of the mineral windfalls and the scale of the exchange rate shifts they engender as legitimate reasons for reinforcing protection of the manufacturing sector. Similarly, the potential unemployment during the boom in the increasingly uncompetitive agricultural sector has sometimes led to subsidies and protection there also. In this way a sizeable fraction of the non-mining sector — and in some cases all of it — may be protected from the full force of international competition [Lewis (1982, 1984)]. Under such conditions of pervasive protection the demonstration effect in wages from the well-remunerated mine labour aristocracy, possibly supported by public sector employees,

can easily trigger spiralling wage increases that bear little relation to productivity. The resulting inflexible non-mining tradeables sector then becomes a formidable lobby opposed to a reduction in real incomes when the boom subsides. Yet mineral price downswings require rapid compensatory expansions from the lagging 'tradeable' sectors because such downswings tend to be poorly predicted and they therefore emerge quickly. There is clearly a theoretical case at least for some form of intervention to moderate the adjustment. But the precise nature and feasibility of such a policy will vary with the level of economic development and the sophistication of domestic institutions.

20. There is evidence that a large agricultural sector facilitates adjustment to mineral price downswing [Auty (1990)]. This is because of its capacity to switch products (i.e. crops) relatively quickly, to generate foreign exchange and to absorb labour. However, the agricultural sector tends to be very much smaller in mature mineral economies compared with the historical norms discussed and elaborated on in section 2.1.1. It is also very difficult to reverse the shrinkage in agriculture [Auty (1993)]. This can increase the vulnerability of middle income mineral economies to price swings. The problem of a weak agricultural sector compared with low-income mineral economies can be exacerbated in mid-income mineral economies when the manufacturing sector has been promoted primarily through overly-protectionist import substitution policies.

1.5 THE LEADING POLICY ISSUES

1.5.1 Macroeconomic Policy Issues

21. The macroeconomic policy issues have been surveyed by Daniel (1992) while detailed empirical studies have also been made of the oil-exporters by Gelb (1988) and of the ore-exporters by Auty (1993). These studies conclude that the principal cause of the disappointing performance of mineral economies stems from the volatility of mineral revenue flows and the asymmetry of the adjustment of the economy to booms and downswings. Basically, the gains made during an upswing may be reduced, and even eliminated, by inflexible downswing adjustment.

22. Three key policy responses to this problem are identified by Daniel (1992). First, the destabilising nature of mineral revenue flows from an appropriate Resource Rent Tax (RRT) can be smoothed through the application of a stabilization fund. Here, rent refers to the expected income accruing to a non-renewable resource over and above that required to attract capital and labour for its extraction. This is a longer-run concept: in practice, because of mineral price fluctuations, the actual income flow in the short run will be subject to strong fluctuations. An RRT coupled with a stabilization fund captures for the government a portion of the discounted cash flow from mining in excess of a pre-determined rate. That rate is one which represents an appropriate longer run rate of return on the capital invested. Such a RRT needs to be based on contractual security in order to reduce the risk to investors of renegotiation (and thereby cut their required rate of return). It also needs to be coupled with a stabilization fund so that the instability of the revenue flows can be managed whilst maintaining stable economic activity.

23. Second, governments must estimate the absorptive capacity of the economy and sterilise any surplus mineral revenues in overseas accounts (involving an amount up to two-thirds of the oil windfalls 1974-78 and 1979-83, according to [Gelb (1988)]. This mineral stabilization fund becomes the key stabiliser in the economy, allowing the government to maintain a steady rate of economic activity. Some severe problems have, however, recently emerged in administering

such a system under conditions of economic stabilization. They can arise when capital markets have been liberalized and monetary policy fails to neutralize increasing revenues as the boom develops. In this case, as confidence rebuilds, and flight capital returns, the resulting inflow of capital can trigger 'Dutch Disease' effects which compound the real exchange rate appreciation from the re-emergence of the boom.

24. Recent research has explored the relationship between macroeconomic instability, as expressed in real exchange rate variability and a tendency to sudden collapse [Pritchett (1991)]. For a sample of 68 developing countries Pritchett found that appropriately measured exchange rate instability was associated with a significantly weaker growth performance, an argument explored empirically for mineral economies in section 2.1.

25. Third, governments must allocate the revenues that are domestically absorbed between investment and consumption while also selecting the appropriate private and/or public avenues to channel that absorption. Private absorption may occur through tax reductions and subsidies, public investment would preferably take the form of basic infrastructure and education - provided the recurrent costs incurred can be covered. However, as shown in the case studies in section 2.2, the public investment from mineral revenues is often inappropriate.

26. These measures for absorbing mineral rents assume the operation of a macroeconomic policy with a twin commitment to medium-term fiscal balance and a competitive exchange rate. Such a policy increases the flexibility of the economy because it prevents macroeconomic imbalances from cumulating. But the policy prescriptions outlined so far say little about the role which trade and industry policy should play in improving the performance of the mineral economies.

1.5.2 Trade and Industrial Policy Issues

27. The most enduring argument for protection is the infant industry argument. A variant of this is the Prebisch-Singer argument for import-substituting industrialization to offset the effects of a secular trend in the terms of trade against primary commodity producers. Also, where the small country assumption does not hold and a country faces a less than perfectly elastic demand curve for its exports, an optimum export or import tax is called for. Such a policy would permit a country to exploit its monopoly power in export-markets by using the export tax to induce a terms of trade improvement. A variant of the argument for protecting import substituting industrialization in the context of a mineral exporting economy is that income (rent) is redistributed from resource owners to wage and salary earners when the import substitutes are labour-intensive. [For an empirical study of these issues in the Australian context, see Evans (1972)].

28. There are very few studies of the efficiency of infant industry protection [see Evans (1992)], and even less on the losses from a failure to impose optimal export taxes [see Evans et al. (1992)]. Mostly, the study of trade and industrial policy takes for granted the static efficiency costs of a protective structure at a given point in time and also associated additional rent-seeking costs of protection arising from real resources spent by importers to obtain access to quotas and other protective instruments, or by import substituters to increase protection available to them. Such static studies do not explore the potential dynamic efficiency benefits from infant industry protection or of terms of trade benefits. Nor are the redistributive effects of trade and industrial policy subject to systematic analysis.

29. An additional complication in the assessment of the effects of trade and industrial policy measures stems from the use of quantitative import controls for balance of payments reasons, particularly during cyclical down-swings. As is well-known, the exchange rate is the appropriate policy instrument to use to attain balance of payments equilibrium, not quantitative restrictions. Also, the use of QRs for balance of payments reasons will have endogenous indirect protective effects which will be higher the greater the excess demand for foreign exchange at the official exchange rate, and the coherence of any industrial strategy is likely to be seriously undermined in the process.

30. Apart from the above theoretical issues, there are serious empirical difficulties in measuring both the impact of trade on economic growth, and in measuring the impact of trade policy variables separately from the macroeconomic policy and exchange rate effects on growth. For example, Syrquin and Chenery (1989) use a long time series sample from 1950-83 with over 100 countries to show that a high trade/GDP ratio increases growth, but trade orientation is measured indirectly by deviation from average trade (exports plus imports) to GDP ratios rather than through directly measured trade policy variables themselves or some other determinant of trade ratios. Similarly, Edwards (1989) finds a positive relationship between trade and growth, but trade policy variables are included by proxy rather than by direct measurement. Another large statistical study by McCarthy et al. (1987) is based on a sample of 50 countries over the period 1965-82. In discussing this study, Taylor (1991, p104-5) argues that, for the growth of trade itself to have an important direct impact on the rate of growth of output, it would be necessary for the share of trade in total income to rise over time. However, he observes that there is no relationship between changes in the share of exports in GNP and growth in this sample. A cross-section study using 1970s data discussed in Evans (1989, section 9.6) also finds no relationship between export performance and growth.

31. A serious problem with the Syrquin and Chenery, Edwards and the McCarthy et al., studies, is that there are no directly measured trade policy or other variables included. There are two sets of World Bank data for samples of around 40 countries used in the 1983 and in the 1987 World Bank World Development Reports (WDRs) which attempt to overcome this problem. The latter data base was, in turn, a modified and extended version of Greenaway (1986). However, it turns out that the statistical analysis of the impact of trade policy variables on growth is very sensitive to model specification. Thus, the study reported in Evans (1989, section 9.6), using an augmented version of the 1983 WDR data base, finds that both disaggregation of the measure of price distortion to identify the trade policy component separately and the inclusion of additional variables drives the trade policy variables into a secondary position. The lack of success in finding statistically significant directly measured trade policy variables in regression analysis is echoed in UNCTAD (1989, ch V), where it is concluded that there was no systematic relationship between trade policy reform and export performance in the 1980s. More recently, Helleiner (1993) finds that macroeconomic policy is at least as important as trade and industrial policy in determining overall growth performance.

32. Part of the reason for the lacunae in the empirical findings on trade policy liberalization is that there is no theoretical connection between either trade and growth or between free trade and growth in the static neo-classical trade model which underlies much of the Dutch-disease literature on mineral economies. Moreover, concentration on growth alone fails to make the connection between growth and economic welfare; it is not difficult to imagine a rapidly growing but highly inefficient economy in welfare terms. One situation in which free-trade does yield higher

growth and higher economic welfare arises when there is under-employed or unemployed labour, as in the Lewis surplus labour model, but that situation does not generally apply to mineral exporting economies. To the extent that the surplus labour argument is relevant in this study, it will only be taken up in section 2.2 for the case-study countries.

33. One way in which the theoretical lacunae in the standard neo-classical model has been overcome is to hypothesise that the stimulus of competition on the world market, Adam Smith style, increases the rate of technical change. This hypothesis was tested by Pack (1988, 1992), but no general relationship between trade policy regimes and total factor productivity growth (TFP) was found. However, there is some recent evidence showing that exporting industries have higher rates of growth of TFP than import substituting industries [Nishimizu and Robinson (1986)].

34. Given the inconclusive assessment of the existing empirical studies of the determinants of relationship between either trade and growth or trade policy reform and growth, it is clear that there is major gap in the knowledge necessary to design effective trade and industrial policies for developing countries in general. Since most existing studies of trade and industrial policy are for developing countries in general, failing to take into account some of the particular characteristics of mineral economies discussed above, the knowledge gap for trade and industrial policy formulation is particularly acute for mineral economies.

1.5.3 Macroeconomic, Trade and Industrial Issues to be Pursued

35. On the macroeconomic side, the most important issue on which it was felt that further light needs to be shed centres around the impact on growth of the real exchange rate - both its level, and its variability over time. This is explored statistically in section 2.1 using a country cross-section for three periods chosen for the 1960s, the 1970s and the 1980s. The issue is further explored in the case study context in section 2.2.

36. It is often said that trade and industrial policy and macroeconomic policy interact and reinforce each other in their effects on growth performance. The extent to which that is true is explored in the statistical cross-section analysis in section 2.1 and in the case study context in section 2.2.

2. ACHIEVEMENTS OF MINERAL EXPORTING ECONOMIES

2.1 PERFORMANCE OF MINERAL ECONOMIES

2.1.1 Growth and Structural Dimensions

37. The overall growth performance of mineral exporting economies and a breakdown of this performance by decade has already been summarized in Table 1.2. In Table 2.1.1, where the growth of output and the main components of final demand for the thirty mineral exporting economies for the period 1960-83 is set out, the growth performance is disaggregated by sector. The overall growth experience is highly diverse, but with the exception of Botswana, none of the mineral exporting economies experienced a sustained double-digit growth performance as have some of the NICs. Part of the reason for this is the greater volatility of mineral markets, reflected in the sharp increases in oil prices in 1973 and 1979, and the booms and slumps which have affected other minerals markets over the period covered [see Chart 1.1].

38. In terms of structural change, it can be seen from Table 2.1.1 that, for the unweighted average of the mineral exporting economies, exports grew only slightly faster than output growth, but that imports grew over 1per cent per annum faster than exports, leaving a foreign exchange gap to be filled by other current transactions such as remittances, or by capital account inflows, an expected result since the sample was chosen to consist of capital deficit countries. On the average, mining output grew very much faster than GDP. Whilst manufactures and services grew at about the same pace as GDP, agricultural output grew at only half the pace.

39. In section 1.1, it was noted that, except for the 1970s, the mineral exporting economies did not grow as fast as manufactured exporters. Part of the reason for this is the high capital requirements of minerals production which was not fully offset by an increased share of domestic and foreign investment in GDP. The extent to which this was the case is illustrated in Table 2.1.2.

40. In Table 2.1.2, rows (1) and (2) show estimated investment/GDP and incremental capital output ratios (ICOR) for a sample of Hard-Mineral Exporters, Oil Exporters, Other Middle Income Countries and other Low Income Countries. The product of lines (1) and (2) gives the potential output growth rate (per cent per annum) in each country group, shown in line (3). It can be seen from line (3) that, apart from the Oil Exporters in the 1960-71 period, the Other Middle-Income economies performed better than all others. Assuming the growth performance of the Other Middle-Income Countries could be achieved by the other country groups by altering their investment/GDP ratio, row (4) shows the required change in the Investment/GDP ratio. In the 1970s, particularly the Hard-Mineral exporters, a significant increase in Investment/GDP would have been required to match the performance of the Other Middle-Income Countries. This point is further explored by comparison of the sample of mineral exporting economies with sectoral and demand shares of GDP with the equivalent norms based on Syrquin and Chenery (1989).

41. The Syrquin-Chenery (S-Q) norms are based upon regressions of sectoral and demand shares of GDP over the period 1950-83 for a sample of 108 developing countries. The explanatory variables used are principally per capita GDP and population; the minor role played by time

TABLE 2.1.1

SECTORAL GROWTH INDICATORS, 1960-83

(Per cent per annum)

	GDP per capita	GNP	Exports	Imports	Agri-culture	Mining	Manuf-actures	Services
Algeria	2.4	6.2	2.1	6.7	2.5	7.4	10.4	3.6
Angola	-1.3	0.5	3.1	5.5	-2.2	11.7	0.7	-2.8
Bolivia	1.2	3.7	2.5	2.0	2.8	4.3	1.7	3.5
Botswana	9.2	12.3	17.7	14.1	6.1	42.6	11.0	13.1
Cameroon	2.0	3.9	4.3	3.8	4.1	35.6	6.0	6.8
Chile	0.4	2.3	6.3	3.7	2.7	12.0	-0.1	2.5
Congo	2.9	5.7	10.9	5.7	1.8	28.4	5.3	5.7
Ecuador	4.7	7.4	10.2	7.2	2.8	16.2	10.4	8.7
Egypt	3.7	6.2	4.6	7.8	3.0	12.0	5.2	7.5
Gabon	5.5	6.4	..	..	..	..	..	..
Indonesia	4.2	6.5	6.8	13.9	3.5	7.9	9.3	8.2
Jamaica	0.5	2.0	1.7	2.2	0.5	2.1	1.4	2.7
Jordan	6.7	9.4	25.2	18.2	0.7	13.8	11.0	9.2
Liberia	0.7	4.1	2.9	3.9	7.0	2.6	10.8	3.9
Malaysia	4.4	7.2	7.1	7.2	5.2	4.0	11.1	8.5
Mauritania	1.8	4.1	7.8	6.1	1.9	7.4	5.0	6.7
Mexico	3.5	6.8	6.5	7.8	6.5	4.8	8.1	6.2
Morocco	2.5	5.1	3.0	6	2.3	2.5	5.3	6.7
Niger	-1.4	1.7	4.6	4.9	-1.6	..	11.6	2.7
Nigeria	2.6	5.2	8.8	11.8	0.4	14.0	11.7	7.1
Papau New Guinea	1.9	4.2	11.7	7	2.8	..	5.5	0.9
Peru	1.2	3.9	1.8	4.6	1.9	4.5	4.5	4.0
Sierra Leone	0.8	2.8	-0.3	3.7	2.0	-5.4	3.8	4.9
Syria	3.9	7.4	0.6	11.2	4.5	8.8	2.7	8.1
Togo	2.2	4.6	5.1	8.4	1.7	..	-5.0	6.0
Trinidad	2.3	5.1	1.0	7.0	-0.7	-0.3	1.8	3.4
Tunisia	4.5	6.8	7.8	8.6	-3.5	17.8	6.8	0.8
Venezuela	1.6	5.3	-1.5	9.8	4.5	-1.1	6.1	6.5
Zaire	-0.1	2.2	1.2	3	0.9	2.8	-2.0	0.1
Zambia	0.0	2.9	1.0	-0.9	12.2	-8.8	-8.6	4.1
Average	2.4	5.0	5.6	6.9	2.6	9.5	5.2	5.1

Source: Based on the data base used in Syrquin and Chenery (1989), supplemented by the World Bank Tables and the Year Book of International Trade Statistics.

dummies is suppressed in the analysis reported here. Thus, the norms calculated from the S-Q regression equations refer to the structural coefficients derived from the sample average calculated at given levels of per capita GDP and population. Tables 2.1.3 and 2.1.4 show the relationship between the S-Q norms and the actual sectoral and demand shares for the sample of mineral exporting economies, calculated at the mid-point of the period 1960-83.

42. It can be seen from Table 2.1.3 that, on the average, it is principally agricultural output, and to a lesser extent, manufacturing output shares which contract as the mining share increases; the construction and service sectors are only marginally affected in comparison with the S-Q norms.

TABLE 2.1.2

INVESTMENT AND CAPITAL/OUTPUT (ICOR) RATIOS AND GROWTH RATES, BY DEVELOPING COUNTRY GROUP

	Hard-Mineral Exporters		Oil Exporters		Other Middle-income Countries		Other Low-income countries	
	1960-71	1971-83	1960-71	1971-83	1960-71	1971-83	1960-71	1971-83
(1) Investment/GDP	0.21	0.23	0.21	0.28	0.2	0.24	0.14	0.17
(2) Gross ICOR	0.28	0.07	0.34	0.12	0.32	0.17	0.26	0.17
(3) Potential growth per cent. per annum	5.88	1.61	7.14	3.36	6.4	4.08	3.64	2.89
(4) Additional investment share required above middle-income level	0.02	0.35	-0.02	0.06	0.00	0.00	0.11	0.07
Number of countries	10		10		29		20	

Source: (1) and (2), Gelb (1988).
Note: (3) = (1) X (2) X 100
(4) = [(3) for Middle-Income Countries / (2)] - [(1) x 100]

43. This pattern is repeated for all of the case study countries (Chile, Indonesia, Jamaica, Nigeria, Peru, Venezuela, Zambia) reported in section 2.2, except for agriculture in the case of Indonesia. In the case of manufacturing, there is more variation, with Chile and Peru having a manufacturing share well above the S-Q norm, whilst the remainder of the case-study countries have the expected below average manufacturing share.

44. In Table 2.1.4, the actual and S-Q norms for the composition of demand are shown. On average, the sample of mineral exporting economies show a lower share of private, and markedly higher share of public consumption compared with the S-Q norms. Although the investment share of GDP is about 20% higher than the S-Q norm, it is unlikely that this compensates for the very much higher capital requirements for growth arising from the mineral sector. Thus, the poorer growth performance of mineral exporting economies, particularly when compared with manufacturing exporters, lies in part in the failure of their investment efforts to compensate for the higher capital requirements of their mineral sectors. Table 2.1.4 also shows clearly the capital importing tendency of the sample of mineral exporters since, on average, imports were even higher that the above-average export shares leaving a goods account deficit of 6% of GDP to be covered by other balance of payments flows.

45. Whilst it is useful to analyse some of the structural dimensions of mineral exporting economies, the aim of this study is to identify economic policy variables which interact with the eco-

TABLE 2.1.3

MINERAL EXPORTING ECONOMIES: AVERAGE DEVIATION FROM SECTORAL SHARE NORMS[a]

	Agriculture			Mining			Manufactures			Construction			Services		
	Actual	Norm	Deviation	Actual	Norm	Deviation	Actual	Norm	Deviation	Actual	Norm	Deviation	Actual	Norm	Deviation
Algeria	0.15	0.25	-0.09	0.15	0.08	0.07	0.12	0.18	-0.06	0.10	0.05	0.04	0.45	0.42	0.03
Angola	0.54	0.28	0.26	0.08	0.07	0.01	0.04	0.15	-0.11	0.01	0.05	-0.03	0.31	0.42	-0.11
Bolivia	0.21	0.35	-0.14	0.10	0.05	0.04	0.15	0.12	0.03	0.03	0.04	-0.00	0.47	0.40	0.06
Botswana	0.31	0.25	0.05	0.10	0.06	0.03	0.07	0.12	-0.05	0.06	0.06	0.00	0.43	0.48	-0.04
Cameroon	0.38	0.36	0.02	0.01	0.06	-0.05	0.12	0.13	-0.00	0.05	0.04	0.01	0.42	0.39	0.02
Chile	0.08	0.22	-0.13	0.08	0.07	0.01	0.24	0.19	0.05	0.05	0.06	-0.00	0.52	0.44	0.08
Congo	0.18	0.31	-0.13	0.13	0.06	0.07	0.09	0.11	-0.02	0.09	0.05	0.03	0.49	0.45	0.04
Ecuador	0.24	0.28	-0.04	0.04	0.07	-0.02	0.18	0.15	0.02	0.04	0.05	-0.01	0.48	0.42	0.05
Egypt	0.29	0.39	-0.10	0.06	0.08	-0.02	0.18	0.14	0.04	0.04	0.03	0.01	0.41	0.33	0.07
Gabon	0.14	0.24	-0.10	0.35	0.06	0.28	0.06	0.14	-0.07	0.09	0.06	0.02	0.35	0.48	-0.13
Indonesia	0.43	0.38	0.04	0.12	0.11	0.00	0.09	0.16	-0.06	0.03	0.03	0.00	0.31	0.30	0.00
Jamaica	0.09	0.28	-0.18	0.10	0.06	0.04	0.17	0.13	0.03	0.10	0.05	0.04	0.51	0.45	0.06
Jordan	0.10	0.32	-0.21	0.04	0.06	-0.01	0.13	0.12	0.00	0.08	0.05	0.03	0.63	0.43	0.19
Liberia	0.31	0.40	-0.08	0.28	0.04	0.23	0.05	0.08	-0.03	0.04	0.04	-0.00	0.29	0.41	-0.12
Malaysia	0.29	0.22	0.07	0.06	0.07	-0.00	0.15	0.19	-0.04	0.04	0.05	-0.01	0.43	0.44	-0.00
Mauritania	0.33	0.42	-0.08	0.19	0.04	0.15	0.05	0.07	-0.02	0.07	0.04	0.02	0.33	0.41	-0.07
Mexico	0.14	0.20	-0.05	0.04	0.11	-0.07	0.23	0.22	0.00	0.04	0.05	-0.00	0.53	0.40	0.13
Morocco	0.26	0.32	-0.06	0.06	0.08	-0.02	0.21	0.15	0.05	0.06	0.04	0.01	0.39	0.38	0.00

TABLE 2.1.3 (continued)

	Agriculture			Mining			Manufactures			Construction			Services		
	Actual	Norm	Deviation	Actual	Norm	Deviation	Actual	Norm	Deviation	Actual	Norm	Deviation	Actual	Norm	Deviation
Niger	0.54	0.45	0.08	0.05	0.03	0.01	0.08	0.08	0.00	0.04	0.03	0.00	0.27	0.37	-0.10
Nigeria	0.38	0.28	0.09	0.17	0.12	0.05	0.05	0.19	-0.14	0.07	0.04	0.03	0.31	0.35	-0.03
P.N.G.	0.40	0.34	0.05	0.06	0.05	0.00	0.05	0.12	-0.06	0.11	0.05	0.06	0.36	0.42	-0.05
Peru	0.16	0.44	-0.28	0.07	0.05	0.01	0.25	0.10	0.14	0.03	0.03	-0.00	0.47	0.35	0.12
Sierra L.	0.46	0.46	0.00	0.20	0.03	0.16	0.08	0.07	0.00	0.05	0.04	0.00	0.19	0.38	-0.18
Syria	0.24	0.29	-0.05	0.07	0.07	0.00	0.15	0.15	-0.00	0.04	0.05	-0.00	0.48	0.42	0.06
Togo	0.40	0.45	-0.04	0.07	0.03	0.04	0.08	0.07	0.01	0.05	0.04	0.00	0.37	0.39	-0.01
Trinidad	0.04	0.15	-0.10	0.20	0.04	0.16	0.17	0.18	-0.00	0.06	0.07	-0.01	0.50	0.53	-0.03
Tunisia	0.21	0.31	-0.09	0.07	0.06	0.01	0.11	0.14	-0.03	0.08	0.05	0.03	0.50	0.42	0.08
Venezuela	0.07	0.24	-0.17	0.24	0.08	0.16	0.17	0.18	-0.01	0.05	0.05	-0.00	0.45	0.42	0.02
Zaire	0.28	0.50	-0.21	0.16	0.04	0.11	0.11	0.09	0.01	0.04	0.03	0.01	0.39	0.32	0.07
Zambia	0.13	0.34	-0.20	0.37	0.06	0.31	0.11	0.13	-0.01	0.05	0.04	0.00	0.32	0.41	-0.09
Average	0.26	0.32	-0.06	0.12	0.06	0.06	0.12	0.14	-0.01	0.06	0.04	0.01	0.41	0.41	0.00

Notes:

a/ The table is based on the normal sectoral shares for the sample countries calculated for the middle of the period 1950-83 from Syrquin and Chenery (1989). The actual shares were based on a weighted average of the actual sector shares centred on the mid period. Since the normal shares do not include the time trends, the estimated shares were re-normalised before subtracting from the actual shares.

TABLE 2.1.4
MINERAL EXPORTING ECONOMIES:
AVERAGE DEVIATION FROM DEMAND SHARE NORMS [a]

Country	Private Consumption			Public Consumption			Investment			Exports			Imports		
	Actual	Norm	Deviation	Actual	Norm	Deviation	Actual	Norm	Deviation	Actual	Norm	Deviation	Actual	Norm	Deviation
Algeria	0.58	0.66	-0.07	0.14	0.09	0.05	0.34	0.20	0.13	0.26	0.20	0.05	-0.33	-0.16	-0.17
Angola	0.67	0.68	-0.00	0.14	0.09	0.05	0.10	0.19	-0.09	0.30	0.23	0.06	-0.22	-0.21	-0.01
Bolivia	0.77	0.71	0.05	0.10	0.09	0.00	0.16	0.18	-0.02	0.18	0.23	-0.04	-0.22	-0.23	0.01
Botswana	0.68	0.70	-0.01	0.20	0.10	0.09	0.36	0.23	0.12	0.37	0.34	0.02	-0.62	-0.39	-0.22
Cameroon	0.71	0.71	-0.00	0.12	0.09	0.02	0.18	0.17	0.00	0.25	0.21	0.03	-0.27	-0.20	-0.06
Chile	0.73	0.64	0.08	0.12	0.09	0.03	0.14	0.21	-0.06	0.17	0.23	-0.06	-0.18	-0.19	0.00
Congo	0.71	0.71	0.00	0.16	0.10	0.06	0.33	0.21	0.12	0.37	0.30	0.07	-0.59	-0.33	-0.25
Ecuador	0.71	0.68	0.03	0.11	0.09	0.01	0.17	0.19	-0.01	0.19	0.23	-0.04	-0.20	-0.21	0.01
Egypt	0.68	0.72	-0.03	0.19	0.08	0.10	0.17	0.15	0.01	0.20	0.13	0.06	-0.26	-0.10	-0.16
Gabon	0.41	0.68	-0.27	0.13	0.10	0.03	0.37	0.23	0.14	0.56	0.33	0.23	-0.48	-0.35	-0.13
Indonesia	0.78	0.72	0.05	0.09	0.06	0.02	0.15	0.16	-0.01	0.15	0.07	0.07	-0.18	-0.03	-0.15
Jamaica	0.68	0.69	-0.00	0.11	0.10	0.01	0.24	0.21	0.03	0.34	0.29	0.05	-0.40	-0.30	-0.09
Jordan	0.88	0.71	0.17	0.31	0.10	0.21	0.30	0.19	0.11	0.34	0.27	0.06	-0.84	-0.28	-0.56
Liberia	0.57	0.75	-0.17	0.09	0.10	-0.00	0.26	0.18	0.08	0.55	0.28	0.27	-0.49	-0.32	-0.17
Malaysia	0.57	0.64	-0.06	0.15	0.09	0.06	0.21	0.21	0.00	0.47	0.22	0.24	-0.42	-0.18	-0.24
Mauritania	0.60	0.76	-0.16	0.23	0.10	0.13	0.30	0.17	0.12	0.38	0.28	0.10	-0.53	-0.33	-0.20
Mexico	0.72	0.63	0.09	0.07	0.07	-0.00	0.20	0.21	-0.01	0.11	0.15	-0.04	-0.11	-0.08	-0.03
Morocco	0.75	0.69	0.06	0.13	0.08	0.04	0.16	0.18	-0.01	0.20	0.18	0.01	-0.25	-0.15	-0.10
Niger	0.77	0.76	0.01	0.09	0.09	-0.00	0.21	0.15	0.06	0.16	0.22	-0.06	-0.24	-0.23	-0.01
Nigeria	0.73	0.67	0.05	0.07	0.07	0.00	0.18	0.19	-0.00	0.19	0.12	0.07	-0.19	-0.06	-0.13
P.N.G.	0.61	0.71	-0.10	0.29	0.10	0.19	0.23	0.19	0.04	0.29	0.26	0.02	-0.43	-0.27	-0.15

TABLE 2.1.4 (continued)

	Private Consumption			Public Consumption			Investment			Exports			Imports		
Country	Actual	Norm	Deviation	Actual	Norm	Deviation	Actual	Norm	Deviation	Actual	Norm	Deviation	Actual	Norm	Deviation
Peru	0.70	0.75	-0.04	0.10	0.09	0.01	0.19	0.14	0.05	0.17	0.17	0.00	-0.18	-0.15	-0.02
Sierra L.	0.81	0.77	0.04	0.09	0.10	-0.00	0.12	0.15	-0.02	0.26	0.24	0.02	-0.30	-0.27	-0.03
Syria	0.70	0.68	0.01	0.18	0.09	0.08	0.20	0.19	0.00	0.17	0.23	-0.05	-0.26	-0.21	-0.05
Togo	0.75	0.77	-0.02	0.11	0.10	0.00	0.21	0.16	0.05	0.26	0.25	0.00	-0.34	-0.29	-0.05
Trinidad	0.55	0.63	-0.08	0.12	0.11	0.00	0.25	0.24	0.00	0.44	0.35	0.08	-0.37	-0.36	-0.01
Tunisia	0.65	0.69	-0.03	0.15	0.09	0.05	0.25	0.19	0.06	0.26	0.24	0.02	-0.33	-0.22	-0.11
Venezuela	0.50	0.65	-0.15	0.12	0.09	0.03	0.28	0.20	0.08	0.30	0.21	0.08	-0.23	-0.17	-0.05
Zaire	0.57	0.77	-0.19	0.18	0.08	0.09	0.24	0.12	0.11	0.41	0.13	0.27	-0.41	-0.12	-0.29
Zambia	0.47	0.71	-0.23	0.19	0.09	0.09	0.26	0.18	0.07	0.47	0.24	0.23	-0.40	-0.23	-0.16
Average	0.67	0.70	-0.03	0.14	0.09	0.05	0.23	0.19	0.04	0.29	0.23	0.06	-0.34	-0.22	-0.12

Notes:

a/ The table is based on the normal sectoral shares for the sample countries calculated for the middle of the period 1950-83 from Syrquin and Chenery (1989). The actual shares were based on a weighted average of the actual sector shares centred on the mid period. Since the normal shares do not include the time trends, the estimated shares were re-normalised before subtracting from the actual shares.

nomic structure to affect the growth performance of the economies, and ultimately, their capacity to achieve a more sustainable growth performance.

2.1.2 Policy-Induced Influences on Growth

46. The macroeconomic, trade and industrial policy issues to be explored in this section were set out in section 1.5.3. In order to develop the analysis, the sample was sub-divided into three periods: 1965-72 roughly captures the pre-oil shock; 1973-81 straddles the 1973 and 1979 oil shocks; and the period 1982-89 roughly covers the period influenced by the interest rate and oil decline shocks of the 1980s. For each country and for each period, Table 2.1.5. shows the average annual rate of growth of GDP, treated in this study, as in Syrquin and Chenery (1989), the same as for the rate of growth of GNP. The growth performance of per capita GNP is shown in Charts A1.1-A1.30 in Appendix 1. On the trade and industrial policy side, the only instruments measured covered trade policy and the balance of payments, mainly tariff policy used to foster import substituting industrialisation and quantitative restrictions (QRs) on imports imposed for balance of payments reasons. All other instruments of industrial policy such as subsidized credit are not measured here. Imperfections of measurement aside, the trade and industrial variables are directly measured policy instruments - the height of tariffs and the frequency of non-tariff measures. In contrast, on the macroeconomic side, three outcome variables are measured. The first is the degree of variation in the real exchange rate, the second the trend in the real exchange rate, and the third the black-market discount on the official exchange rate. Thus, the macroeconomic variables combine the influence of exogenous shocks from the rest of the world, the response of the economy to those shocks, and the effectiveness of government macroeconomic policy, covering monetary, fiscal and exchange rate policy, in facilitating adjustment to those shocks.

47. The trade and industrial policy variables, and the macroeconomic variables, were used in single-equation cross-section analyses to explore possible links between these variables and growth performance. At a later stage, it maybe worthwhile extending the analysis to cover a more systematic set of variables affecting growth performance. For the moment, the hypotheses tested are:

1. that higher levels of protection of import substituting sectors are associated with lower growth of output.

2. that fluctuating or unsustainably high (over-valued) real exchange rates are likely to be associated with lower growth, but that an appreciating or depreciating real exchange rate trend will have no prior impact on growth performance.

48. The basic strategy used in collecting the trade policy variables was to draw together as much secondary information for the sample countries as possible. These data were combined with the comprehensive data on average tariffs and the coverage of non-tariff measures (NTMS) from UNCTAD (1987).

49. Some of the secondary data on trade policy regimes were based on measures of effective protection (ERP); to make it possible to combine average tariff data and measures of ERP, a rule

TABLE 2.1.5

GDP GROWTH BY COUNTRY AND TIME PERIOD
(per cent per annum)

	1965-72	1973-81	1982-89
Algeria	8.3	5.9	2.3
Angola	2.9	5.7	na
Bolivia	3.9	2.7	0.2
Botswana	11.1	13.5	9.1
Cameroon	6.6	11.3	2.11
Chile	4.4	3.9	5.0
Congo	6.0	4.8	-0.1
Ecuador	5.4	6.0	2.2
Egypt	3.5	9.4	4.2
Gabon	6.7	-1.8	-1.9
Indonesia	7.5	7.0	5.8
Jamaica	5.5	-3.0	0.3
Jordan	na	11.4	2.5
Liberia	7.9	3.2	na
Malaysia	5.9	7.4	4.5
Mauritania	4.0	3.3	6.8
Mexico	7.0	6.0	1.0
Morocco	6.0	4.9	4.5
Niger	na	6.2	-1.4
Nigeria	4.6	2.9	1.4
Papau New Guinea	5.8	1.5	2.6
Peru	3.5	1.9	1.6
Sierra Leone	4.5	1.8	1.0
Syria	6.5	8.4	0.4
Togo	5.8	3.4	3.0
Trinidad	4.6	5.8	-1.5
Tunisia	7.3	6.8	3.0
Venezuela	5.8	4.2	1.8
Zaire	3.5	-1.3	2.2
Zambia	2.0	0.6	1.6

of thumb was applied whereby it was assumed that ERP equalled twice the average tariff. The trade policy variables collected are shown in detail in Table 2.1.6 and are explained in turn below.

50. Column (1) of Table 2.1.6 refers to the Syrquin-Chenery classification of the sample countries, based on deviation from group averages, according to

S : Small countries <15 million population
L : Large countries >15 million population
P : Primary
M : Manufactures
I : Inward
O : Outward

TABLE 2.1.6 SOURCES OF TRADE POLICY BIAS
(For notes see end of table, and paras 50–55 of main text)

	TRADE POLICY										TRADE POLICY BIAS		
	Syrquin-Chenery 1960-83	Greenaway (1986) and WDR (1987) a/ 1965-73	1973-84	UNCTAD mid 1980s	Tariff b/ %	Tariff Range b/	Average EPR c/	Range EPR c/	Coverage NTMs b/	Share of manufactures in total exports (%)	1965-72	1973-81	1982-89
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
ALGERIA	SPO	-	-	-	18.2 (1985)	0—100 (1985)	-	-	68.4 (1985)	3.2	medium	medium	medium
Litte disaggregated evidence on the nature of Algeria's trade regime, but inference from Gelb (1988, ch 10) is that it is tightly controlled like the rest of the economy with strong sectoral differentiation. Trade bias classification lifted from 'low' to medium on grounds that NTMs > 50%.													
ANGOLA	SMI	-	-	-	20 (1985)	0—56 (1985)	-	-	100 (1985)	-	high	high	high
Trade policy bias classification lifted from 'medium' to 'high' on grounds of NTMs > 50%. Major doubt over effectiveness of controls in practice.													
BOLIVIA	SPI	MIO	SIO	-	19.5 (1985)	0—20 (1985)	54 (1970) 101 (1975-76)	- -12—551 (1976)	32.1 (1985)	2.6	high	very high	low
BOTSWANA	-	-		-	-	0—35 (1985)	-	-	-	-	low	low	low
Effectively classified as MOO by Frimpong-Ansah (1991). See also Harney and Lewis (1990, pp.171-5).													
CAMEROON	SPO	MOO	MOO	-	37 (1985)	0—70 (1985)	31 (1975-76)	-	15.3 (1985)	6.6	high	high	high
Auty, (1990, p 208) argues that the Cameroon followed a 'strongly inward-orientated industrialisation policy. This judgement is not necessarily in conflict with the above categorisation since the Cameroon is at the very high end of the high range.													

TABLE 2.1.6 (continued)

	TRADE POLICY										TRADE POLICY BIAS		
	Syrquin-Chenery 1960-83	Greenaway (1986) and WDR (1987) a/ 1965-73	1973-84	UNCTAD mid 1980s	Tariff b/ %	Tariff Range b/	Average EPR c/	Range EPR c/	Coverage NTMs b/	Share of manufactures in total exports (%)	1965-72	1973-81	1982-89
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
CHILE	SPI	SIO	MOO	low	20.2 (1985)	0—20 (1985)	175 (1967) 151.4 (1974) 13.6 (1979)	-23—1140	16.1 (1985)	6.8	very high	medium	low
Chile ranges from 'very high' to 'low' trade policy bias for the period 1972-81; medium was chosen for the whole period. The 'low' classification for 1982-89 supported by the observations made in Michaelly (1991, ch2) suggesting that the Chilean trade policy regime from 1977 to 1981 was close to free trade. The estimates of effective protection for 1967 were from Greenaway (1986); for 1974 and 1979, from Corbo and de Melo (1987). In 1983, the uniform tariff of 10% was raised to 20%, and to 35% in 1984. It was subsequently reduced to 15% in 1988.													
CONGO	SPO	-	-	-	28.7 (1985)	0—75 (1985)		-	100 (1985)	25.7	medium	medium	medium
Effectively classified as MOO by Frimpong-Ansah (1991).													
ECUADOR	SPO	-	-	very high	39.1 (1985)	0—290 (1985)		-	51.0 (1985)	2.4	very high	very high	very high
QRs widely used. Gelb (1988, ch 11) characterises Ecuador as a classic ISI case in the 1970s, with EPRs of up to 300%.													
EGYPT	LMO	-	-	high	41.4 (1985) 22.9 (1988)	0-3000 (1985)	-	-	100 (1985)	20.0	very high	very high	high
1981-89 classification based on the observation that the average tariff was sharply cut in 1988, bringing the average tariff for the period below 40%													
GABON	-	-	-	-	-	0—75 (1985)	-	-	extensive	4.5	very high	very high	very high
Effectively classified as MOO by Frimpong-Ansah (1991). 'Very high' classification based on mid-point of tariff range combined with extensive nature of NTMs.													

TABLE 2.1.6 (continued)

	Syrquin-Chenery 1960-83	Greenaway (1986) and WDR (1987) a/		UNCTAD mid 1980s	TRADE POLICY					Share of manufactures in total exports (%)	TRADE POLICY BIAS		
		1965-73	1973-84		Tariff b/ %	Tariff Range b/	Average EPR c/	Range EPR c/	Coverage NTMs b/		1965-72	1973-81	1982-89
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
INDONESIA	LPO	MOO	MIO	very high	18.4 (1985)	0-60 (1985) 21.1 (1988)	33 (1971) 30 (1975a) 61 (1975b) 39 (1987)	-19—5400 (1971) -35—4314 (1975a) -6—426 (1975b) -2—152 (1987)	92.5 (1985) 12.1 (1988)	2.7	medium	high	medium

Gelb (1988, ch 12) describes the system of widely dispersed tariffs in the 1980s, with some use of quotas. Auty (1990, p208) argues that Indonesia pursued 'strongly inward-orientated industrialisation'. This classification and that of Greenaway (1986) for the period 1973-84, is not reflected in the 1975a EPR measure reported in Greenaway (1975a), but is reflected in the alternative (1975b) EPRs measures from the World Bank. Note that the 1987 EPR measure and the estimated average tariff confirm the accuracy of the rule of thumb 2xtariff = EPR. It would seem on the sequence of bias classifications chosen to best fit the available evidence. The 1988 information on average tariffs and NTMs provided by UNCTAD confirm the classification 'medium' for 1981-89.

JAMAICA	SMI	-	-	-	16.7 (1985)	0—45 (1985)	-	-	16.7 (1985)	48.2	medium	medium	low

Although economic policy has appeared to change with governments, Bennick (1984) stresses the continuity of interventionist economic policies, including trade policy and increasing reliance on QRs for balance of payments reasons. Trade Policy Reform under SAL and IMF conditionality subjects to slippage [Mosley et al 1991, ch17). More substantial liberalisation subsequently. Hence likely that average tariff in the medium range over the first two periods. Nankani (1979) argues that Jamaica followed a destructive ISI policy, but the account conflates ISI policies with Dutch-disease effects.

JORDAN	SMI	-	-	medium	27.1 (1985)	0—130 (1985)	-	-	16.8 (1985)	34.3	medium	medium	medium

Khadan and Badran (1987, ch 5, 8 and 13) describe Jordan as a liberal trading regime with only modest tariffs and no QRs.

LIBERIA	SPO	-		-	-	0—75 (1985)	-	-	-	3.3	high	high	high

TABLE 2.1.6 (continued)

	TRADE POLICY										TRADE POLICY BIAS		
	Syrquin-Chenery 1960-83	Greenaway (1986) and WDR (1987) a/ 1965-73	1973-84	UNCTAD mid 1980s	Tariff b/ %	Tariff Range b/	Average EPR c/	Range EPR c/	Coverage NTMs b/	Share of manufactures in total exports (%)	1965-72	1973-81	1982-89
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
MALAYSIA	SPO	MOO	MOO	low	15.0 (1985)	0—105 (1985)	8 (1963) 38 (1970) 39 (1973) 25 (1980)	-42—212 (1963) 5—248 (1970) 0—307 (1973) -173—1175 (1980)	8.2 (1985)	14	low	low	low
MAURITANIA		SPO	-	-	-	- (1985)	0—92	-	-	-	3.1	high	high high
Classification based on the mid-point of tariff range.													
MEXICO	LPI	MIO	MOO	low	13.4 (1985)	0—100 (1985)	49 (1970) 11 (1979) 3—10 (1980)	2—371 (1970) -32—249 (1979) -33—211 (1980)	24.1 (1985)	25.4	medium	low	low
1985-88. QR liberalisation, tariff reductions, tariff variance lowered, reform of customs valuation procedures, using the average tariff criterion, clearly in the 'low' category by the mid-1980s. This confirmed by EPRs for late 1970s. On basis that average EPR is twice the average of tariffs, then classification is 'medium' for the period 1960-73. This contrasts with WDR (1987) view which classifies Mexico as more strongly protectionist.													
MOROCCO	SMI	-	-	high	34.6 (1985)	0—150 (1985)	-	-	100.0 (1985)	17.7	high	high	high
In the 1980s, there was a reduction of goods subject to NTBs and a rationalisation of the tariff system [(GATT (1990)].													
NIGER	SPO	-	-	-	-	0—40 (1985)	-	-	extensive	4.3	medium	medium	medium
Classification based on mid-point of tariff range.													

TABLE 2.1.6 (continued)

	TRADE POLICY										TRADE POLICY BIAS		
	Syrquin-Chenery 1960-83	Greenaway (1986) and WDR (1987) a/ 1965-73	1973-84	UNCTAD mid 1980s	Tariff b/ %	Tariff Range b/	Average EPR c/	Range EPR c/	Coverage NTMs b/	Share of manufactures in total exports (%)	1965-72	1973-81	1982-89
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
NIGERIA	LPO	SIO	SIO	-	20.5 (1985) 58.6 (1988)	0—200 (1985)	99 (1968) 82 (1978-9)	-27—1063 (1968) 62—1119 (1978-9)	18.4 (1985) 7.3 (1988)	1.5	very high	very high	high

1986-7. Import licensing system abolished, import levy discontinued, import tariffs cut, import deposits abolished, exchange rate reforms. The increase in average tariffs at the end of the 1980s is associated with a continuing reform of NTMs. Given the range of tariffs and the sharply changing height of the average tariff, whilst NTM reform continued, suggest a 'high' classification.

PAPUA NEW GUINEA	SPO	-	-	-	13.1	0—35 (1985)	-	-	1.3 (1985)	9.1 (1985)	low	low	low
PERU	SPI	SIO	SIO	very high	56.1 (1985)	0—86 (1985)	90 (1971) 198 (1975) 122 (1978) 74 (1981)	- 27—121 (1981)	100 (1985)	6.6	very high	very high	very high

1979-80. Maximum tariff reduced from 355% to 60%. some increase in tariff escalation. Most imports go on quota free list. A reversal of these reforms took place from 1984. Although these reforms brought Peru down to a 'medium' trade policy bias, they were not sustained for long enough to alter the overall estimate of trade policy bias for either 1973-81 or 1982-89.

SIERRA LEONE	SPO	-	-	-	21.8 (1985)	0—75 (1985)	-	-	100 (1985)	-	high	high	high
SYRIA	SPI	-	–	-	24.5 (1985)	0—150 (1985)	-	-	100 (1985)	10.8	high	high	high

TABLE 2.1.6 (continued)

	TRADE POLICY									Share of manufactures in total exports (%)	TRADE POLICY BIAS		
	Syrquin-Chenery 1960-83	Greenaway (1986) and WDR (1987) a/ 1965-73	1973-84	UNCTAD mid 1980s	Tariff b/ %	Tariff Range b/	Average EPR c/	Range EPR c/	Coverage NTMs b/		1965-72	1973-81	1982-89
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
TOGO	SPO	-	-	-	-	0—25 (1985)	-	-	100 (1985)	6.3	medium	medium	medium
TRINIDAD	-	-	-	high	41.6 (1985)	0—45 (1985)	-	-	33.5 (1985)	9.8	very high	very high	very high
Gelb (1988, ch 14), Nankani (1979, p53) and Auty (1990, p208) characterise Trinidad as the classic ISI country in the 1970s.													
TUNISIA	SMI	SIO	MIO	very high	27.5 (1985)	0—219 (1985)	250 (1972)	1—737 (1972)	77.6 (1985)	26.3	very high	very high	high
VENEZUELA	SPO	-	-	-	31.4 (1985) 22.9 (1988)	0—125 (1985)	-	-	100 (1985)	1.5	very high	very high	high
Gelb (1988, ch 15) cites that nominal protection rates were up to 300% in the 1970s; rationalised in 1979 with 100% maximum, with some subsequent slippage. A 'high' classification was maintained for the whole of the period 1982-89 inspite of the continuing reform towards the end of the periods though the case for doing so is perhaps marginal.													
ZAIRE	LPO	-	-	-	18.2 (1985)	0—100	-	-	100 (1985)	6.4	medium	medium	medium
Nankani (1979, p53, 17-18) characterises Zaire as have pursued a destructive ISI policy, but this classification confuses Dutch Disease effects and ISI effects.													
ZAMBIA	SPO	SIO	SIO	-	25.8 (1985)	0—100	161 (1975)	-22—1251	100 (1985)	0.1	very high	very high	high
The Greenaway and World Bank classification used for 1960-73. For the later period, there has been evidence of some rationalisation and reform. On the basis of the average tariff, tariff, Zambia is in the 'medium' classification for 1974-83. On the grounds of 100% NTM coverage, Zambia trade policy bias is classified as 'high' for the second period.													

NOTES
a/ The classification follows Greenaway (1986), except for the additional countries included in WDR (1987).
b/ Tariff averages include para tariffs. Tariffs, tariff range and coverage of Non-Tariff Measures (NTMs) from UNCTAD (1987). The tariff range is the range for most imports. This is reflected in the NTM coverage measure
c/ Summary data from Greenaway (1986). Where other sources used, the references are noted in the country notes.

51. Columns (2) and (3) collect the country classifications according to trade policy variables used in Greenaway (1986) and WDR (1987) according to

SOO	:	Strongly outward orientated
MOO	:	Moderately outward orientated
MIO	:	Moderately inward orientated
SIO	:	Strongly inward orientated

52. Column (4) records the classification of countries by trade policy orientation shown in UNCTAD (1992, p.105) according to a four-way division: low/medium/high/very high.

53. Column (5) on tariffs shows the import weighted average of tariffs and para tariffs (that is, tariffs and other tariff-like charges on imports) for the mid 1980s from UNCTAD (1987); and column (9) is a trade-weighted average of the incidence of non-tariff measures (NTMs), also for the 1980s. The tariff ranges in column (6) are also from UNCTAD (1987). The effective protection estimates shown in columns (7) and (8) are from Greenaway (1986), supplemented by other sources where noted. Finally, the shares of manufactures in total exports shown in column (10) are from the World Bank (1992) World Tables.

54. Estimates of the degree of trade policy bias (TPB) shown in columns (11) - (13) in Table 2.1.6 were based in the first instance on the average of tariffs and para tariffs shown in column (5) according to:

TPB		Average nominal tariff	Average effective protection
low	:	less than 20%	less than 40%
medium	:	20% to less than 30%	40% to less than 60%
high	:	30% to less than 40%	60% to less than 80
very high	:	greater than 40%	greater than 80%

55. This TPB indicator was modified when the coverage of NTMs was above 50%, in which case the degree of bias was increased by one category. Where other considerations entered into the final classification of trade policy bias, the reasons for this are recorded in the notes attached under the estimates for each country in the table.

56. Time series estimates of real exchange rate for 1960-84 for each country were obtained from Wood (1988), updated to 1989 and extended to cover the sample of mineral exporting countries. The maximum, minimum, average variation and trend in the real exchange rates are shown with the average black market premium for each period in Table 2.1.7. Note that the black market premium exchange rates, based on *Pick's Currency Year-book*, are not available for the full sample in the two earlier periods and are available for no countries from 1984 when Pick's ceased publication. The time series of the real exchange rates and black-market premiums are shown in Charts A2.1-A2.30 in Appendix II.

57. Classification of the real exchange rate variations, trends, and the black market premiums, according to the degree of severity 'low', 'medium', 'high' and 'very high' for each period was

TABLE 2.1.7

REAL EXCHANGE RATES:TIME TREND COEFFICIENTS, VARIATION FROM TREND, AND BLACK MARKET DISCOUNTS

	Period	Maximum Variation	Minimum Variation	Average Variation	Trend Value	Average Black Market Discount
Algeria	1965 – 72	3.83	-4.65	1.69	-0.0166	30.00
	1973 – 81	10.00	-8.50	4.50	0.0390	50.30
	1982 – 89	13.72	-14.15	9.02	0.0460	–
Angola	1965 – 72	2.99	-3.99	1.95	0.0119	15.80
	1973 – 81	8.77	-7.96	4.73	0.0825	–
	1982 – 89	–	–	–	–	–
Bolivia	1965 – 72	1.80	-1.96	0.81	-0.0160	20.40
	1973 – 81	17.70	-13.62	9.16	0.0550	11.90
	1982 – 89	36.54	-24.21	13.00	-0.0466	–
Botswana	1965 – 72	6.60	-8.34	3.01	-0.0259	7.80
	1973 – 81	11.41	-18.08	7.21	-0.0058	–
	1982 – 89	18.68	-16.16	11.34	-0.0196	–
Cameroon	1965 – 72	5.60	-4.94	2.83	-0.0100	4.80
	1973 – 81	7.61	-7.08	3.96	0.0160	0.30
	1982 – 89	8.62	-10.36	5.19	0.0326	–
Chile	1965 – 72	8.28	-7.97	4.70	-0.0039	48.90
	1973 – 81	23.48	-26.00	12.29	0.0323	19.50
	1982 – 89	15.31	-12.29	8.18	-0.0823	–
Congo	1965 – 72	5.20	-5.97	3.87	-0.0224	4.80
	1973 – 81	11.33	-6.28	4.48	0.0163	0.30
	1982 – 89	6.10	-11.78	4.39	-0.0415	–
Ecuador	1965 – 72	16.92	-10.74	8.19	-0.0446	14.10
	1973 – 81	9.50	-9.72	6.23	0.0542	7.20
	1982 – 89	18.28	-9.20	6.84	-0.0715	–
Egypt	1965 – 72	3.00	-4.78	2.29	-0.0328	50.30
	1973 – 81	19.77	-21.85	11.48	-0.0484	33.20
	1982 – 89	18.02	-16.84	11.06	-0.0344	–
Gabon	1965 – 72	5.96	-3.48	2.84	-0.0270	–
	1973 – 81	12.05	-15.38	8.02	0.0536	–
	1982 – 89	4.97	-5.69	4.02	-0.0272	–
Indonesia	1965 – 72	15.88	-16.61	10.11	0.0233	19.20
	1973 – 81	15.10	-17.89	9.32	0.0255	3.20
	1982 – 89	9.97	-11.02	5.82	-0.1015	–

TABLE 2.1.7 (continued)

	Period	Maximum Variation	Minimum Variation	Average Variation	Trend Value	Average Black Market Discount
Jamaica	1965 – 72	6.48	-4.92	3.20	-0.0250	13.50
	1973 – 81	26.20	-23.07	13.67	-0.0385	28.0
	1982 – 89	15.12	-26.84	12.68	-0.0355	–
Jordan	1965 – 72	3.54	-2.96	1.95	-0.0037	–
	1973 – 81	7.53	-6.84	4.06	0.0285	–
	1982 – 89	10.67	-17.53	8.34	-0.0640	–
Liberia	1965 – 72	7.20	-4.12	2.82	-0.0545	1.00
	1973 – 81	9.79	-7.40	5.08	-0.0099	17.70
	1982 – 89	4.34	-3.73	2.76	-0.0112	–
Malaysia	1965 – 72	3.65	-2.01	1.27	-0.0440	1.10
	1973 – 81	7.28	-7.04	3.93	-0.0067	0.40
	1982 – 89	11.35	-9.15	5.34	-0.0568	–
Mauritania	1965 – 72	6.89	-7.04	3.66	-0.0398	5.20
	1973 – 81	9.63	-7.29	5.27	-0.0222	28.00
	1982 – 89	2.89	-5.29	1.94	-0.0282	–
Mexico	1965 – 72	1.88	-2.99	1.32	-0.0122	0.00
	1973 – 81	24.38	-17.68	10.98	0.0089	3.00
	1982 – 89	17.94	-17.58	11.27	-0.0320	–
Morocco	1965 – 72	3.71	-2.51	1.63	-0.0298	9.50
	1973 – 81	5.89	-7.42	3.76	-0.0168	5.60
	1982 – 89	15.11	-14.14	6.70	-0.0095	–
Niger	1965 – 72	5.05	-6.00	3.16	-0.0440	4.80
	1973 – 81	7.89	-7.18	4.78	0.0199	0.40
	1982 – 89	10.23	-10.11	5.57	0.0028	–
Nigeria	1965 – 72	11.65	-15.00	8.33	0.0486	20.10
	1973 – 81	12.40	-18.14	7.87	0.0650	33.90
	1982 – 89	54.50	-27.47	21.60	-0.2380	–
Papua New Guinea	1965 – 72	3.89	-3.67	2.60	0.0100	–
	1973 – 81	6.13	-11.16	4.00	-0.0070	–
	1982 – 89	5.18	-7.86	4.06	-0.0110	–
Peru	1965 – 72	5.93	-6.22	2.54	-0.0173	18.40
	1973 – 81	24.36	-29.81	12.00	-0.0460	19.90
	1982 – 89	29.65	-22.48	11.08	-0.0300	–

TABLE 2.1.7 (continued)

	Period	Maximum Variation	Minimum Variation	Average Variation	Trend Value	Average Black Market Discount
Sierra Leone	1965 – 72	6.05	-3.89	2.42	-0.0600	–
	1973 – 81	5.70	-10.68	3.78	0.0030	–
	1982 – 89	46.83	-44.81	19.40	-0.1010	–
Syria	1965 – 72	4.37	-5.40	2.91	-0.0280	12.10
	1973 – 81	14.08	-9.28	5.62	0.0292	8.90
	1982 – 89	19.24	-18.06	10.86	-0.1370	–
Togo	1965 – 72	4.07	-7.62	3.03	-0.0353	4.80
	1973 – 81	12.96	-13.35	5.52	-0.0160	0.30
	1982 – 89	10.80	-12.54	7.41	0.0308	–
Trinidad	1965 – 72	8.40	-5.34	3.32	-0.0220	–
	1973 – 81	20.05	-16.69	10.91	0.0530	–
	1982 – 89	34.12	-21.51	14.17	-0.1420	–
Tunisia	1965 – 72	1.68	-1.93	1.16	-0.0160	24.00
	1973 – 81	5.99	-6.43	3.13	-0.0096	5.60
	1982 – 89	1.96	-2.25	1.14	-0.0358	–
Venezuela	1965 – 72	2.24	-1.33	0.95	-0.0270	0.20
	1973 – 81	18.69	-14.37	7.79	0.0280	0.20
	1982 – 89	10.62	-14.30	8.23	-0.1360	–
Zaire	1965 – 72	11.42	-14.51	6.90	-0.0418	39.50
	1973 – 81	33.03	-19.09	10.76	0.0157	53.10
	1982 – 89	17.54	-14.68	12.45	-0.1053	–
Zambia	1965 – 72	29.67	-16.02	11.13	0.0013	25.80
	1973 – 81	16.49	-13.14	9.60	-0.0430	50.70
	1982 – 89	50.44	-38.94	24.73	-0.0598	–
Averages	1965 – 72	6.73	-6.24	3.55	-0.0198	15.23
	1973 – 81	14.21	-13.58	7.02	0.0117	15.90
	1982 – 89	17.83	-15.74	8.99	-0.0542	–

done by establishing criteria which divided the sample into four groups, not necessarily of equa size, in each period. The criteria were:

Exchange Rate Variation (ERV)

	1965-72	1973-81	1982-89
Low:	0% ≤ ERV < 2%	0% ≤ ERV < 4%	0% ≤ ERV < 5%
Medium:	2% ≤ ERV < 3%	4% ≤ ERV < 7%	5% ≤ ERV < 8%
High:	3% ≤ ERV < 4%	7% ≤ ERV < 10%	8% ≤ ERV < 11%
V High:	4% ≤ ERV	10% ≤ ERV	11% ≤ ERV

Trend

	1965-72	1973-81	1982-92
Low:	Trend < -4%	Trend < -1%	Trend < -8%
Medium:	-4% ≤ Trend < -2%	-1% ≤ Trend < 1%	-8% ≤Trend < -5%
High:	-2% ≤ Trend < 0%	1% ≤ Trend < 3%	-5% ≤Trend < -2%
V High:	0% ≤ Trend	3% ≤ Trend	-2% ≤Trend

Black Market Premium (ERB)

	1965-72 and 1973-81
Low:	0.0% ≤ ERB < 7.5%
Medium:	7.5% ≤ ERB < 15.0%
High:	15.0% ≤ ERB < 22.5%
V High:	22.5% ≤ ERB

58. The results for all of the real exchange rate variables are set out in Table 2.1.8. The results are further summarised in Table 2.1.9, where the average growth rates are shown for each period and the estimates of trade policy bias and exchange rate variables are given a numerical value according to

Low	:	1
Medium	:	2
High	:	3
Very High	:	4

59. The simplest way to explore the extent to which the trade policy and exchange rate variables are associated with growth performance is to conduct a series of single and multi-variable ordinary least squares (OLS) regressions in which the average annual rate of growth for each country in each period is the dependent variable, and the policy or outcome variables the independent variables. This was done first for the full sample using the numerical measures for trade policy bias (TPB), exchange rate variation (ERV) and Trend(Trend) and the growth rates shown in Table 2.1.9. The results were disappointing - for each variable and for all periods, the explained variance (R^2) was less than 10%.

60. There are some good reasons to expect that some of the countries included in the sample would not have been responsive to the policy variables included. These are the new or 'young'

TABLE 2.1.8 SOURCES OF EXCHANGE RATE BIAS

	1965-72 Variability	Trend	Black Market Premium	1973-81 Variability	Trend	Black Market Premium	1982-89 Variability	Trend	Black Market Premium
Algeria	low	high	v high	medium	v high	v high	high	v high	-
Angola	low	v high	v high	medium	v high	-	-	-	-
Bolivia	low	high	v high	v high	v high	medium	v high	medium	-
Botswana	high	medium	medium	high	medium	-	v high	v high	-
Cameroon	medium	high	low	low	high	low	high	v high	-
Chile	v high	high	v high	v high	v high	v high	medium	low	-
Congo	high	medium	low	medium	high	low	low	high	-
Ecuador	v high	low	medium	medium	v high	low	medium	medium	-
Egypt	medium	medium	v high	v high	low	v high	v high	high	-
Gabon	medium	medium	-	medium	v high	-	low	high	-
Indonesia	v high	v high	high	high	high	low	medium	low	-
Jamaica	high	medium	medium	v high	low	v high	v high	high	-
Jordan	low	high	-	medium	high	-	high	medium	-
Liberia	medium	low	low	medium	medium	high	low	v high	-
Malaysia	low	low	low	low	medium	low	medium	medium	-
Mauritania	high	medium	low	medium	low	v high	low	medium	-
Mexico	low	high	low	high	medium	low	v high	medium	-
Morocco	low	medium	medium	low	low	low	medium	v high	-
Niger	high	low	low	medium	high	low	medium	v high	-
Nigeria	v high	v high	high	high	v high	v high	v high	low	-
Papau New Guinea	medium	v high	low	low	medium	low	low	v high	-
Peru	medium	high	high	v high	low	high	v high	v high	-
Sierra Leone	medium	high	-	low	medium	-	v high	low	-
Syria	medium	medium	medium	medium	high	medium	high	low	-
Togo	high	medium	low	medium	low	low	medium	v high	-
Trinidad	high	medium	-	v high	v high	-	v high	low	-
Tunisia	low	high	high	low	medium	low	low	high	-
Venezuela	low	medium	low	high	high	low	high	low	-
Zaire	v high	low	v high	v high	high	v high	v high	low	-
Zambia	v high	v high	v high	high	low	v high	v high	medium	-

TABLE 2.1.9

TRADE POLICY AND EXCHANGE RATE VARIABLES COMBINED FOR DIFFERENT PERIODS[a]

Period = 1965-72

	GDP Growth (per cent per annum)	Trade Policy Bias	Exchange Rate Variation	Trend	Black Market Premium
Algeria	8.3	2	1	3	4
Angola	2.9	3	1	4	4
Bolivia	3.9	3	1	3	4
Botswana	11.1	1	3	2	2
Cameroon	6.6	3	2	3	1
Chile	4.4	4	4	3	4
Congo	6.0	2	3	2	1
Ecuador	5.4	4	4	1	2
Egypt	3.5	4	2	2	4
Gabon	6.7	4	2	2	–
Indonesia	7.5	2	4	4	3
Jamaica	5.5	2	3	2	2
Liberia	7.9	3	2	1	1
Malaysia	5.9	1	1	1	1
Mauritania	4.0	3	3	2	1
Mexico	7.0	2	1	3	1
Morocco	6.0	3	1	2	2
Nigeria	4.6	4	4	4	3
Papua New Guinea	5.8	1	2	4	1
Peru	3.5	4	2	3	3
Sierra Leone	4.5	3	2	3	–
Syria	6.5	3	2	2	2
Togo	5.8	2	3	2	1
Trinidad	4.6	4	3	2	–
Tunisia	7.3	4	1	3	3
Venezuela	5.8	4	1	2	1
Zaire	3.5	2	4	1	4
Zambia	2.0	4	4	4	4

Table 2.1.9 (continued)

Period = 1973-81

	GDP Growth (per cent per annum)	Trade Policy Bias	Exchange Rate Variation	Trend	Black Market Premium
Algeria	5.9	2	2	4	4
Angola	0.6	3	2	4	
Bolivia	0.3	4	3	4	2
Botswana	0.1	1	3	2	–
Cameroon	0.1	3	1	3	1
Chile	0.4	2	4	4	3
Congo	0.5	2	2	3	1
Ecuador	0.6	4	2	4	1
Egypt	0.9	4	4	1	4
Gabon	-0.2	4	2	4	–
Indonesia	0.7	3	3	3	1
Jamaica	-0.3	2	4	1	4
Jordan	0.1	2	2	3	–
Liberia	0.3	3	2	2	3
Malaysia	0.7	1	1	2	1
Mauritania	0.3	3	2	1	4
Mexico	0.6	1	4	2	1
Morocco	0.5	3	1	1	1
Niger	0.6	2	2	3	1
Nigeria	0.3	4	3	4	4
Papua New Guinea	0.2	1	1	2	1
Peru	0.2	4	4	1	3
Sierra Leone	0.2	3	1	2	–
Syria	0.8	3	2	3	2
Togo	0.3	2	2	1	1
Trinidad	0.6	4	4	4	–
Tunisia	0.7	4	1	2	1
Venezuela	0.4	4	3	3	1
Zaire	-0.1	2	4	3	4
Zambia	0.6	4	3	1	4

Table 2.1.9 (continued.)

Period = 1982-89

	GDP Growth (per cent per annum)	Trade Policy Bias	Exchange Rate Variation	Trend	Black Market Premium
Algeria	2.3	2	3	4	Not applicable
Bolivia	0.2	1	4	2	
Botswana	9.1	1	4	4	
Cameroon	2.1	3	3	4	
Chile	5.0	1	2	1	
Congo	-0.1	2	1	3	
Ecuador	2.2	4	2	2	
Egypt	4.2	3	4	3	
Gabon	-1.9	4	1	3	
Indonesia	5.8	2	2	1	
Jamaica	0.3	1	4	3	
Jordan	2.5	2	3	2	
Malaysia	4.5	1	2	2	
Mauritania	6.8	3	1	2	
Mexico	1.0	1	4	2	
Morocco	4.5	3	2	4	
Niger	-1.4	2	2	4	
Nigeria	1.4	3	4	1	
Papua New Guinea	2.6	1	1	4	
Peru	1.6	4	4	4	
Sierra Leone	1.0	3	4	1	
Syria	0.4	3	3	1	
Togo	3.0	2	2	4	
Trinidad	-1.5	4	4	1	
Tunisia	3.0	3	1	3	
Venezuela	1.8	3	3	1	
Zaire	2.2	2	4	1	
Zambia	1.6	3	4	2	

Source: Table 2.1.5, Table 2.1.6 and 2.1.8

mineral exporting countries whose growth performance is likely to have been driven by a range of exogenous factors related to the size and quality of the new mineral deposits, the capacity of the government to manage and administer a new mineral deposit and the exogenous stimulus to the economy arising from the construction phase of the the new minerals sector. The development of a capacity to implement suitable trade and industrial policies, or to manage real exchange rates, is likely to be low on the list of government priorities since these policies are likely to have little influence on the initial growth rates.

61. To take into account the different exogenous influences in 'young' and 'mature' mineral exporters, the nine countries whose mineral exports were less than 20% of total exports in the first two periods were distinguished as shown in Table 1.1.

62. A second adjustment to the sample of 'mature' mineral exporters was also made to include those countries and periods for which the full set of exchange rate variables were available. Thus, for 1965-72 and 1972-81, the 17 'mature' countries from Table 2.1.9 for which ERV, Trend and the Black Market Premium (ERB) were available are designated Mature (ERB).

63. For the 21 country 'Mature' and 17 country 'Mature' (ERB) samples, dramatically improved regression results were obtained. In the case of TPB, a weak negative, but statistically insignificant association with the rate of growth was obtained for all periods, illustrated in Charts 2.1.1A2-C2. However, much more powerful results were obtained for the exchange rate variation (ERV) and black market discount (ERB) variables; there was no association between growth performance and the trend in the real exchange rates. The results are summarised in Charts 2.1.1A1-C1 for ERV and in Table 2.1.10 for ERV and ERB.

64. Two striking results are evident from Table 2.1.10 and Charts 2.1.1A-C. First, for all periods, the exchange rate variation (ERV) variable accounted for between 14% and 25% of the variance in growth performance in the three-sub-periods for the sample of 'Mature' countries. Moreover, the relatively weak ERV effect was in the period 1965-72 when exchange rate variation was relatively small compared with the second and third periods (see Table 2.1.7). The R^2 obtained is similar to that found by Pritchett (1991) for a larger sample of developing countries. Unlike the Pritchet study, there was no evidence found that the distributions were skewed (as can be seen from the pattern of maximum and minimum variations in Table 2.1.7). The result reported here was for a straightforward measure of average exchange rate variation.

65. The second strong result is that, for the smaller 'Mature' (ERB) sample, both the ERV and ERB variables were both independent and highly significant determinants of growth performance in the period 1973-81.

66. The findings of this statistical section provide some evidence to support the proposition that a failure to manage short-run real exchange rate fluctuation act as a significant brake on the overall growth performance, and that when the real exchange rate diverges from a 'realistic' or equilibrium value, additional deleterious growth consequences can also follow. The disappointing results on trade and industrial policy, which are in line with many of the studies reported in section 1.5.2., can be interpreted in three ways. First, it might be taken as confirmation of the expected result, that trade and industrial policy is indeed unimportant, so that the best policy option for mineral exporters would be to line-up their trade and industrial policy with others in a move towards a more open world economy. A second line of argument is that trade and indus-

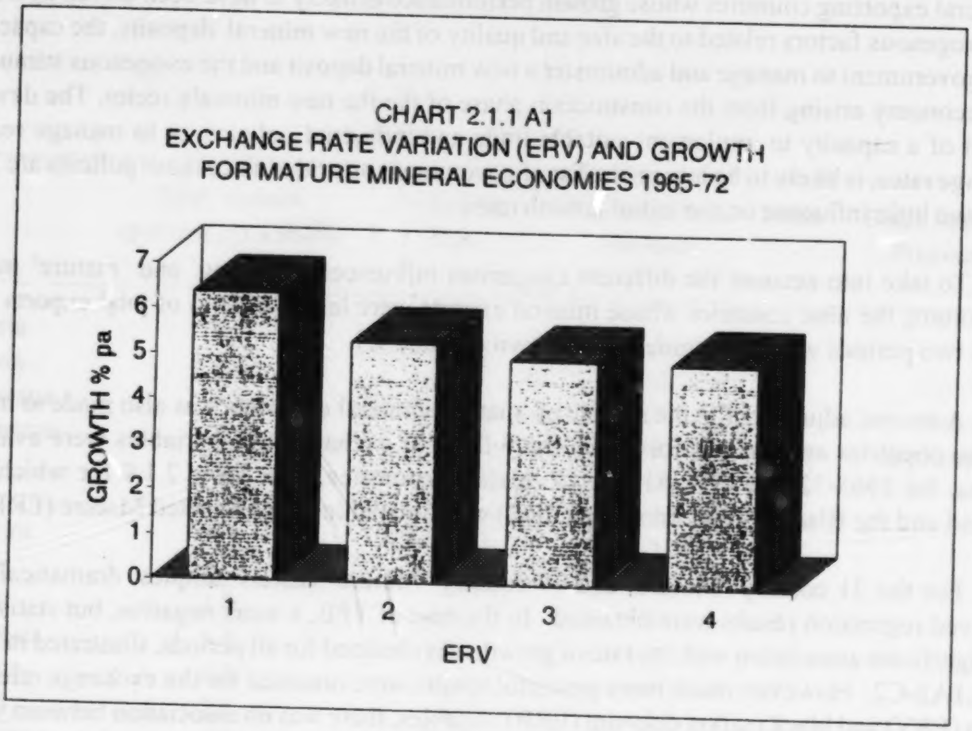


CHART 2.1.1 A1
EXCHANGE RATE VARIATION (ERV) AND GROWTH
FOR MATURE MINERAL ECONOMIES 1965-72

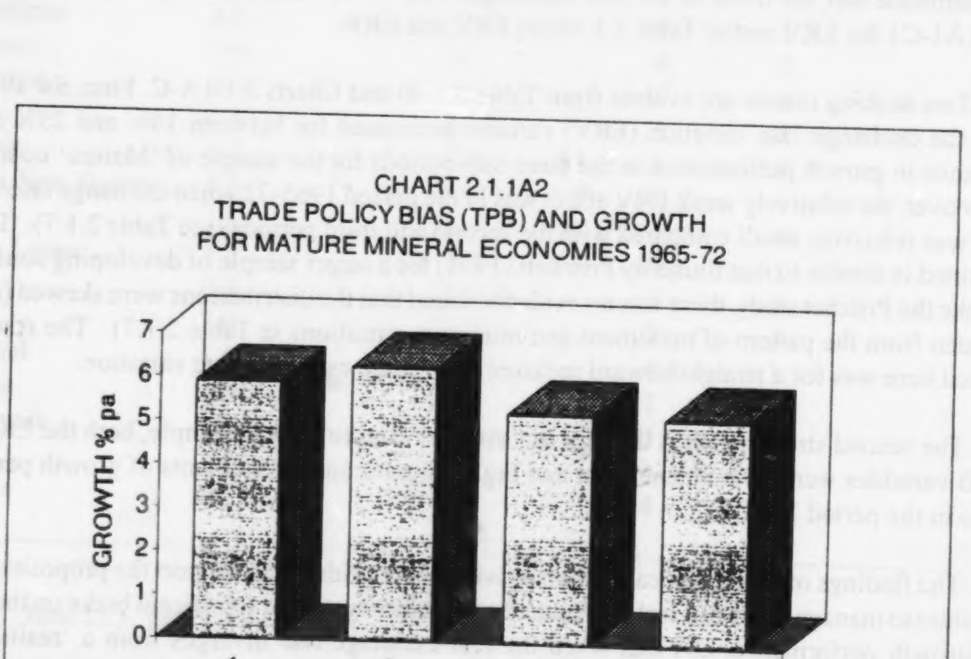


CHART 2.1.1A2
TRADE POLICY BIAS (TPB) AND GROWTH
FOR MATURE MINERAL ECONOMIES 1965-72

CHART 2.1.1 B1
EXCHANGE RATE VARIATION (ERV) AND GROWTH
FOR MATURE MINERAL ECONOMIES 1973-81

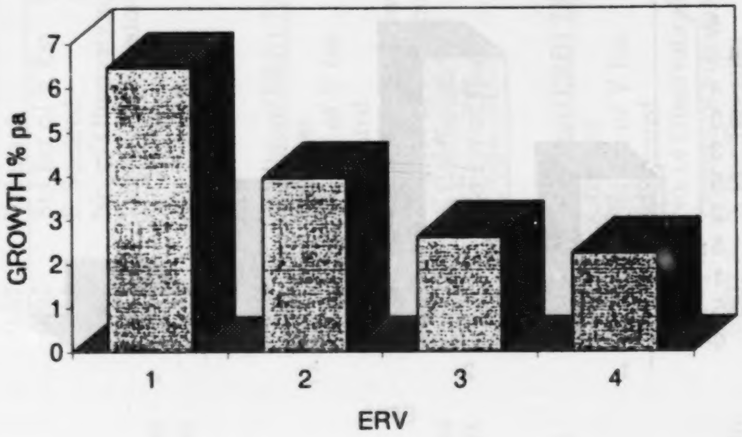


CHART 2.1.1 B2
TRADE POLICY BIAS (TPB) AND GROWTH
FOR MATURE MINERAL ECONOMIES 1973-81

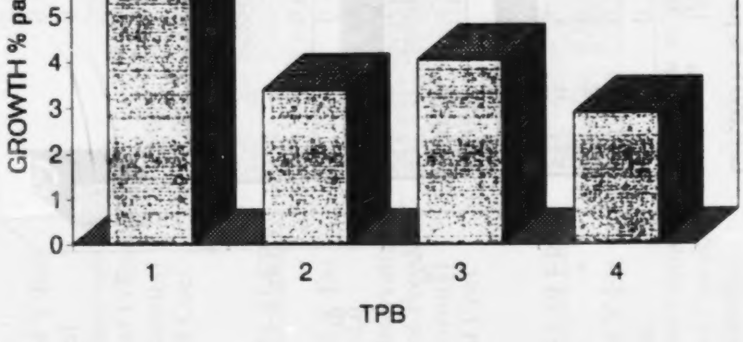


CHART 2.1.1 C1
EXCHANGE RATE VARIATION (ERV) AND GROWTH
FOR MATURE MINERAL ECONOMIES 1982-89

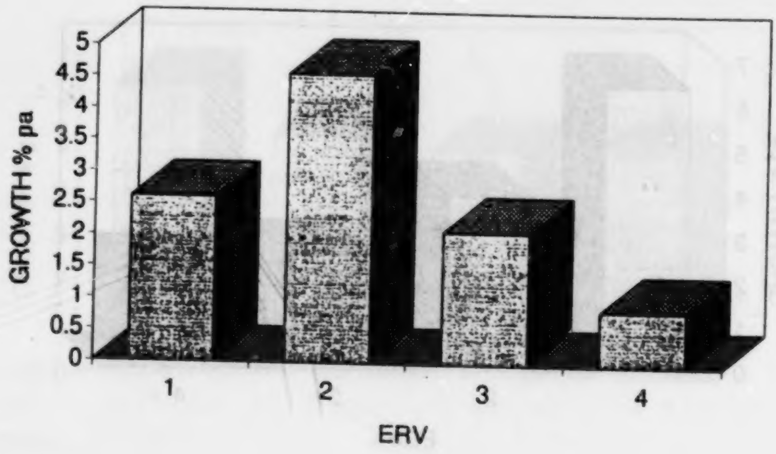


CHART 2.1.1 C2
TRADE POLICY BIAS (TPB) AND GROWTH
FOR MATURE MINERAL ECONOMIES 1982-89

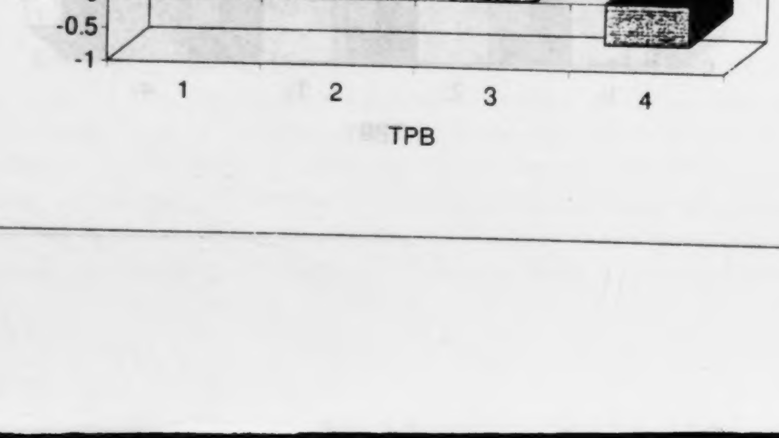


TABLE 2.1.10

REGRESSION RESULTS FOR OUTPUT GROWTH AS A FUNCTION OF (X) [a/]

X = Mature 65-72 ERV		
Constant		0.07
Std Err of Y Est		0.02
R Squared		0.14
No. of Observations		20
Degrees of Freedom		18
X Coefficient(s)	-0.005	
Std Err of Coef.	0.003	

X = Mature(ERB) 65-72 ERV		
Constant		0.07
Std Err of Y Est		0.02
R Squared		0.21
No. of Observations		17
Degrees of Freedom		15
X Coefficient(s)	-0.006	
Std Err of Coef.	0.003	

X = Mature(ERB) 73-81 ERV		
Constant		0.08
Std Err of Y Est		0.02
R Squared		0.33
No. of Observations		17
Degrees of Freedom		15
X Coefficient(s)	-0.015	
Std Err of Coef.	0.005	

X = Mature 73-81 ERV		
Constant		0.07
Std Err of Y Est		0.03
R Squared		0.23
No. of Observations		21
Degrees of Freedom		19
X Coefficient(s)	-0.014	
Std Err of Coef.	0.006	

X = Mature(ERB) 65-72 ERB		
Constant		0.07
Std Err of Y Est		0.02
R Squared		0.10
No. of Observations		17
Degrees of Freedom		15
X Coefficient(s)	-0.004	
Std Err of Coef.	0.003	

X = Mature(ERB) 73-81 ERB		
Constant		0.07
Std Err of Y Est		0.02
R Squared		0.45
No. of Observations		17
Degrees of Freedom		15
X Coefficient(s)	-0.014	
Std Err of Coef.	0.004	

X = Mature 82-89 ERV		
Constant		0.05
Std Err of Y Est		0.02
R Squared		0.25
No. of Observations		20
Degrees of Freedom		18
X Coefficient(s)	-0.009	
Std Err of Coef.	0.004	

X = Mature(ERB) 65-72 ERV,ERB		
Constant		0.07
Std Err of Y Est		0.02
R Squared		0.22
No. of Observations		17
Degrees of Freedom		14
X Coefficient(s)	-0.006	-0.002
Std Err of Coef.	0.004	0.004

X = Mature(ERB) 73-81 ERV, ERB		
Constant		0.09
Std Err of Y Est		0.02
R Squared		0.56
No. of Observations		17
Degrees of Freedom		14
X Coefficient(s)	-0.010	-0.011
Std Err of Coef.	0.005	0.004

[a/] See paras 61-62 of main text for definition of independant variables (x) trial policy is neither important nor linked to macro performance, so that all that is necessary for enhancing industrial growth is a good macro policy. A third line of argument might be that a background of good macro-economic policy for management is necessary for the successful implementation of a successful trade and industrial policy, but that the detailed costs and benefits of such a policy can only be analysed in greater detail using country case studies. This third line of argument is taken up in section 2.2.

2.2. CASE STUDIES OF MINERAL ECONOMY PERFORMANCE

2.2.1 Introduction

67. This section examines the experience of seven mineral economies in more detail. It first studies two pairs of contrasting countries with regard to the relationship between economic performance and macro policy and trade and industry policy. The two pairs comprise the low-income oil exporters, Indonesia and Nigeria; and the mid-income ore exporters, Chile and Peru. The comparisons confirm: the key role of macro policy in moderating exchange rate shifts; the sensitivity and subservience of trade and industry policies to macro policy; and the importance of economic diversification for sustained rapid economic growth.

68. The remaining three case studies examine sectoral diversification options with respect to: the generally disappointing experience with resource-based industrialization (Venezuela); the constraints faced by a small mid-income country which lacks the RBI option (Jamaica); and the difficulties encountered by a low-income ore exporter (Zambia) in the late stage of the mineral production cycle.

69. The principal questions asked in this section are as follows:

a) are pre-shock conditions and the scale of the shocks more important determinants of economic performance than the policies adopted?

b) what is the relationship between macro policy and trade and industry policy?

c) how has the competitiveness of the non-mining tradeable sectors (agriculture, RBI and non-RBI manufacturing) responded to different policies?

d) how does a country's level of income and political economy constrain:

i) the role of the non-mining tradeable sectors?

ii) the nature and the sequencing of policy reform?

2.2.2 The Oil Cycle in Indonesia and Nigeria 1970-90

2.2.2.1 Economic Performance: Policy versus Pre-Conditions and Shocks

70. Indonesia and Nigeria shared important pre-shock characteristics. Both were large populous countries, with resilient agricultural sectors that were recovering strongly from internal political disturbances. Investment was a respectable 17% of GDP in Nigeria 1970-72 (data are not available for the late-1960s) and 22% in Indonesia 1967-72 while annual GDP growth exceeded 8% in both economies as they recovered strongly from internal conflicts. Their large domestic market potential provided favourable conditions for industrialization. But the Indonesian economy was the more favoured because it was more diversified: its oil dependence index (calculated as the percentage reliance on oil exports) was 31 compared with 54 for Nigeria. Similarly, the Indonesian Dutch disease index (which measures the degree to which the share of non-mining tradeables in GDP departs from the Chenery and Syrquin norm) was lower than that of Nigeria, at 0.9 compared with 8.7 [Gelb (1988)].

71. Three external shocks occurred (1973, 1979 and 1986) which were of a similar magnitude: both the 1973 and 1979 oil shocks were positive while the 1986 shock was negative. Table 2.2.1

summarises the two positive shocks, identifying the price effect and the volume effect. It shows that Nigeria's windfall from the first oil shock was larger than that of Indonesia relative to non-oil GDP, but that the second windfall was of similar magnitude (around 22% of non-oil GDP). The negative shock for Indonesia in 1986 was equivalent to the loss of 15% of GDP 1986-88, intensifying from a level of 3% 1982-85 [Ahmed (1989)]. The equivalent shock for Nigeria was slightly milder, at 14% of GDP 1986-88. But the Nigerian economy proved far less resilient. The oil booms in Nigeria were associated with a decline in real per capita incomes below pre-shock levels whereas Indonesia sustained rapid economic growth as shown in Charts A1.11 and A1.20.

72. During the booms, the governments of both countries intervened strongly at the sectoral level, significantly raising protection and the scope for rent-seeking. Successive Nigerian governments, military and civilian, increasingly intervened to boost public expenditure during the booms and to ration resources during downswings. The increasing frequency of regime changes in Nigeria shortened time horizons, subverted long-term economic goals to short-term political gain and inhibited implementation of the unpopular policies which prudent macro management periodically requires. In contrast, Indonesia benefited from the continuity of a political regime which was committed to macroeconomic orthodoxy and the pursuit of prudent fiscal and exchange rate policies. The priority accorded to macro performance had two key beneficial effects. First, it prevented the cumulation of fiscal and external imbalances to unsustainable levels. Second, it limited the damage done by rent-seeking groups [Pinto (1987), Gillis (1984)].

2.2.2.2 Boom Responses: 1974-82

73. Table 2.2.1 traces the absorption of the oil windfalls, after [Gelb (1988)]. It uses a counterfactual which projects pre-shock trends through the oil booms, using the Chenery and Syrquin norms to adjust for changes in the composition of absorption and structure of production as per capita income rises. Gelb ascribes deviations from the counterfactual to the deployment of the windfalls and measures departure from the counterfactual in terms of non-mining GDP.

74. An initial measure of domestic absorption is made by deducting from the total windfall the change in the external balance (trade and non-factor services is the preferred index over the current account because the former, like the national accounts, refers to domestic activity and is undistorted by the role of national and domestic factors). The residual represents domestic absorption which is decomposed into consumption and investment, expressed initially in nominal values. The latter can then be adjusted to allow for differential price changes to give the real effect, and also for changes from the counterfactual in the non-mining GDP growth rate, as shown in the last four rows in Table 2.2.1.

75. Unlike the Indonesian government, Nigeria saved little of its oil windfalls. After an initial sharp increase in foreign exchange reserves the Nigerian windfall deployment swung strongly towards domestic absorption. Overseas savings were quickly run down and by 1978 the country became a net borrower, a condition to which it soon returned after a brief respite provided by the second (1979) oil shock [Gelb (1988)]. Foreign debt accumulated with alarming speed from 1981-82.

76. Investment dominated Nigerian domestic absorption, accounting for almost two-thirds of its first windfall and one-half of the second. The greatly increased scale of public sector investment offset a decline from the pre-shock trend in private investment [Gelb (1988)]. But in real terms

TABLE 2.2.1

OIL WINDFALLS AND THEIR DEPLOYMENT DURING 1974-78 AND 1979-81[a/]

(PER CENT OF NON MINING GDP)

	1974-78			1979-81			
	Indonesia	Nigeria	Venezuela	Indonesia	Nigeria	Mexico	Venezuela
Domestic Oil Windfall	15.9	22.8	10.8	22.7	21.9	3.5	8.7
Real	1.6	-2.3	-20.5	-2.5	-6.1	n.a.	-28.0
Price	14.3	25.1	31.3	25.2	28.0	n.a.	36.6
Absorption Effects							
Trade and Nonfactor Service	5.3	2.8	-0.1	9.6	0.1	-1.8	1.1
Current Balance	4.8	5.4	3.9	6.1	3.9	0.2	7.0
Non-oil Growth Effect	-2.4	-1.5	5.9	-3.5	-29.5	n.a.	-6.6
Real Allocation & Growth Effect							
Private Consumption	-1.5	0.5	15.8	7.7	-15.3	n.a.	20.0
Public Consumption	1.5	4.2	1.8	3.0	2.3	n.a.	-0.7
Private Investment	-3.4	-9.8	3.3	7.9	0.4	n.a.	-0.6
Public Investment	7.9	18.5	3.3	–	–	–	–

Source : Gelb (1988)

Note

a/ The table is based on a counterfactual of what would have occured in the absence of the oil windfall. It is made on four key assumptions:

- a) relative price deflators constant at their average 1970-72 'base period' ratio;
- b) a constant ratio of real mining output to non-mining GDP;
- c) a constant ratio of total absorption to output;
- d) consumption and investment change their share of absorption in line with normal shares derived from Chenery and Syrquin (1975).

The windfalls and their uses are then derived as deviations of actual supply and demand shares from their hypothetical projections and expressed relative to non-mining GDP to facilitate comparison. In this way it becomes possible to distinguish the contribution of volume changes and price changes in the parameters and, also, to adjust for any acceleration of slow-down in the growth of non-mining GDP (assumed to be attributed to windfall absorption) compared with the base period. For a more elaborate description we can refer readers to Gelb (1988), pp 56-59.

(i.e. when adjusted for inflation and departure from pre-shock growth trends) the increase in Nigerian investment over the pre-shock trend was negligible by 1979-81, while private consumption actually declined sharply as shown in Table 2.2.1. This disappointing outcome reflected the severe supply side failure of Nigerian windfall absorption [Gelb (1988)]. The large capital sums which Nigeria absorbed domestically were poorly invested [Auty (1990)]. Although Nigeria sensibly used the first oil boom to rapidly expand its infrastructure, the potential benefits of such investment were not fully realised because of the subsequent deterioration in overall economic efficiency. Transportation accounted for one-third of government allocation during 1974-79 and education for one-ninth as the government sought to gain rural support and demonstrate that the windfall was being widely dispersed [Bienen (1983)].

77. After the second oil shock, Nigeria shifted the emphasis into directly productive investment and targeted RBI for import substitution. Dominated by RBI, manufacturing absorbed one-third of total federal expenditure during 1975-83 and the public sector accounted for two-thirds of Nigerian manufacturing investment over that period. The annual rate of investment was projected to exceed one-third of GDP with one-third going to steel, one-fifth to petrochemicals and one-tenth to large pulp and agro-industry projects [Stevens (1984)]. Large projects, notably the Ajaokuta and Delta steel plants, dominated the manufacturing allocations and incurred big cost overruns, severe operating difficulties and very low capacity utilisation rates [Auty (1990)]. Table 2.2.2 shows that the Nigerian RBI projects achieved disappointing levels of efficiency compared with Indonesia.

TABLE 2.2.2

ESTIMATED RBI INVESTMENT AND INCREMENTAL & CAPITAL–OUTPUT RATIOS (ICOR) FOR MID–1980'S

	Total RBI Investment ($ Billion)	Value Added Mid-1980s ($ Billion)	ICOR	RBI Investment as per cent of non-mining GDP
Indonesia	13.446[a/]	2.690	5.2	19
Nigeria	6.739[b/]	0.172	39.2	14
Venezuela	6.401[c/]	0.756	8.5	14

Source: Auty (1990)

Notes

a/ 70.4% petrochemicals (excluding LNG) and 29.6% metals (steel and aluminium)
b/ 15.7% petrochemicals and 94.7% metals (steel only)
c/ 100.0% metals

78. Meanwhile, non-RBI manufacturing in Nigeria was uncompetitive and also came to depend on imports for an estimated three-quarters of its inputs in the early-1980s. This partly reflected a rapid rise in the real effective exchange rate which increased during the first oil boom by around 50% comparing 1974-78 with 1970-72. Indonesia experienced a similar rise, but whereas Indonesia devalued in 1979 and kept the rate within its 1974-78 range over the next six years, Nigeria permitted its real exchange rate to appreciate to almost twice its 1970-72 value over the years 1979-85(See Appendix II, Charts A2.11 and A2.20.)

79. Nigeria experienced severe 'Dutch disease' effects which eroded agricultural competitiveness and undermined the manufacturing sector, bringing successful demands for increased protection. Table 2.2.3 shows that sharp increases in the Nigerian effective rates of protection occurred during the two oil booms for all but the mineral/forest-based and export-oriented sectors. Rates of effective protection became especially high for assembly industries and consumer goods using imported inputs. In this way, sectoral policies were used by Nigeria to postpone adjustment and render the scale of the change subsequently required much greater than would have been the case with more timely action.

TABLE 2.2.3
NIGERIA: NET EFFECTIVE RATES OF PROTECTION[a/]
(per cent)

	1977	1979-80
By industrial sub-sectors		
Agro-allied industries	-6.7	14.7
Mineral and forest resource–based industries	-10.3	-13.5
Industries producing construction materials	n.a.	-3.1
Metal working and engineering	n.a.	50.8
Export oriented industries	-22.3	-15.1
Assembly industries	79.4	215.8
By source of inputs [b/]		
Industries processing domestic raw materials	-4.1	39.9
consumer goods	12.7	81.7
intermediates and capital goods	-9.9	16.4
Industries processing imported raw materials	65.7	66.8
consumer goods	74.6	146.9
intermediates and capital goods	24.4	65.4

Sources: World Bank, Steven (1990)

Notes

a/ Based on exchange rate distortion of 35%. Weights based on sectoral shares of value added. Some activities may appear under more than one heading.

b/ Processing of domestic/imported materials contributing 50% or more of total inputs.

80. But the windfalls also weakened Nigerian agriculture. Nigeria failed to emulate Indonesia where the government, mindful of the fact that rural riots were instrumental in the downfall of its predecessor, also targeted rural areas. Yet, whereas Indonesia invested in irrigation and green revolution techniques and transformed a major food deficit into self-sufficiency, Nigeria stressed rural infrastructure but mismanaged its more direct sectoral interventions. The modest sums invested by Nigeria on small rural projects during the booms yielded a poor return. They improved the lot of administrators and contractors rather than farmers [Harman (1986)]. Meanwhile, in the absence of productivity improvements to offset the adverse effect of import compe-

tition that resulted from the appreciation of the real exchange rate, Nigerian food output failed to keep pace with demand while the country's pre-shock export prominence in palm oil and groundnut markets was lost and its dominance in cocoa production also weakened. Yet the Nigerian deployment pattern initially drew broad popular support, even though the payback - at best - was likely to be very long-term [Gelb (1988)].

81. Although Indonesia benefited from somewhat better windfall pre-conditions than Nigeria, its main strength was the continuity of a government which favoured a prudent macro–economic policy. Indonesia's oil windfall, relative to non-oil GDP, was two-thirds that of Nigeria during the first oil boom, but Indonesia was more cautious and saved one-third abroad (Table 2.2.1: compare the change from the pre-shock trend in trade and non-factor services with the total shock). Its domestic absorption was further muted during the first boom by the scandal which engulfed Pertamina, the State oil corporation. The $10 billion foreign debt which Pertamina covertly accumulated required servicing and this slowed the rate of domestic absorption of the oil rent. This delayed many Indonesian RBI projects until the second boom, a delay which was probably fortuitous, given the performance of the State-dominated RBI projects which did proceed [Auty (1990)].

82. During the first oil boom, Indonesia increased public consumption by the equivalent of 1.5% of non-oil output in real terms as shown in Table 2.2.1 while private consumption shrank by a similar proportion from the pre-shock trend. Although private investment declined from its relatively high pre-shock trend, public investment more than offset this, for a net increase in the rate of capital formation over the pre-shock rate equivalent to 4.5% of non-oil GDP.

83. Around one-quarter of all Indonesian public development investment during the first oil boom went on infrastructure. Two-fifths of the development investment was allocated to the hydrocarbon sector to prolong oil production and diversify both foreign exchange earnings and tax revenues through LNG exports. Two large LNG projects were successfully built which helped to expand and diversify hydrocarbon markets. Less than one-sixth of development expenditure went into the metal industries and a similar amount was invested in the non-metals industries to broaden the manufacturing sector.

84. Even Indonesia found it difficult to resist the pressures for over-rapid absorption created by the euphoric second oil boom [Auty (1990)]. Almost 60% of the second Indonesian windfall was absorbed domestically (as shown in Table 2.2.1: compare lines one and four). Private consumption, public consumption and investment all increased sharply so that inflation accelerated and eliminated the benefits of the 1979 devaluation as shown in Chart A2.11. Subsidised consumption expanded so much during the second oil boom that it threatened the competitiveness of the erstwhile efficient food grain sector.

85. Although Indonesian manufacturing grew rapidly during the oil booms, it emphasised capital-intensive RBI rather than labour-intensive light industry and was far less efficient than it need have been [Hill (1990)]. During the first boom, as in Nigeria, the exchange rate appreciation was accompanied by intensified protection. The loss of competitiveness was used as an excuse to extend protection and rent-seeking opportunities. The delayed RBI projects were sanctioned only to be sharply curtailed when oil prices weakened. Those RBI projects which did proceed experienced mixed fortunes as shown in Table 2.2.2, with chemicals, notably fertilizer, generally superior to metals, especially steel.

86. Summarising the boom period, the deployment of the oil windfalls did not improve the competitiveness of the manufacturing sectors in either country, especially Nigeria, where the macroeconomic environment deteriorated sharply. Nigeria also severely weakened what had been a vibrant agricultural sector. Both countries intensified the inward-orientation of their industrial policies through the oil booms and spawned excessively protected non-RBI manufacturing sectors and relatively inefficient RBI projects (other than the LNG plants which dominated Indonesian RBI and were implemented as joint-ventures with MNCs).

2.2.2.3 Downswing Adjustment 1982-92

87. The long-term commitment of the Indonesian government to prudent macro–economic policy led to timely shifts which corrected the fiscal and current account imbalances when the booms waned. This prevented Indonesia both from accumulating unsustainable levels of fiscal and external imbalances, and also from reaching the extremes of oil dependence seen in Nigeria. Having devalued in 1979 and 1983, Indonesia made a third large devaluation in 1986-87 (to 60% of the 1983 value) in contrast to the massive exchange rate adjustment (to one-quarter of its 1984 level) required of Nigeria by then. (as shown in Appendix II, Charts A2.11 and A2.20).

88. The Indonesian government also made prompt cuts in public spending and broadened the tax base during 1984-86 to boost the non-oil tax share from 8.3% to 13.2% of GDP over the decade 1981-91. It also drew upon foreign loans to smooth the adjustment after 1982 and again after 1986, but this pushed total debt towards 50% of GDP. Much of the debt was denominated in yen and when the yen appreciated during 1985-87, debt service rose to 40% of export earnings before surging non-oil exports shrank it to a more manageable 30% by 1990 [Bhattacharya and Pangestu (1992)]. Successful macroeconomic stabilization allowed the Indonesian exchange rate depreciation of 1986 to stick at a level similar to its early-1970s value.

89. Indonesian protection had intensified during 1982-85, deflecting the country from its previous moderately inward stance. Table 2.2.4 shows that Indonesian effective protection rates were high for the import-competing sector. However, they spawned a dualistic manufacturing sector in which some firms used the rents to postpone meeting the efficiency imperative while others became efficient and therefore highly profitable. For example, a large private sector user of polyester yarn secured an internal rate of return (IRR) of 30% compared with 22% for a small firm, but without protection the IRR levels would fall to 6% and minus 56%, respectively [Flatters and Jenkins (1986)]. The resulting effective subsidy on labour amounted to $3,000 per person employed by the large producer and $1,300 for the smaller one (compared with an annual average wage of $600) while the effective subsidy on capital was 150% and 225%, respectively. Within the large state-owned manufacturing sector, resource-use efficiency was even lower with returns below 3% [Hill (1982)].

90. The dualistic Indonesian manufacturing sector proved more resilient than that of Nigeria when trade and industry policies were liberalised in the late-1980s. A start was made on dismantling the system that had been built up since the 1960s. NTBs were reduced during 1986-91 from 43% of imports to 13% (embracing 8% of the total production value). The number of tariff bands was halved to eleven, the tariff ceiling was cut to 65% and average levels of nominal protection were lowered from 37% to 20% over the period. Meanwhile, exporters were allowed to import inputs duty free and were given assistance with credit and insurance. Domestic competition was further enhanced by a reduction in investment licensing and by easing restrictions on

TABLE 2.2.4

INDONESIA: EFFECTIVE RATES OF PROTECTION
(per cent)

A. Manufacturing	1975	1987	1990
All Tradeables (excluding oil)	29.7	26.0	24.0
Import competing sector	61.0	39.0	35.0
Export competing sector	-6.0	-2.0	-1.0
Manufacturing Total (excluding oil refining)	74.1	68.0	59.0
Basic Industry	38.7	8.0	5.0
Oil refining	-	-1.0	-1.0
Iron and steel	18.2	13.0	10.0
Chemicals	28.4	14.0	13.0
Cement	63.6	60.2	53.6
Capital Goods	15.3	150.0	97.0
Engineering	-	152.0	139.0
Intermediate Goods	48.0	42.0	40.0
Wood and cork products	-1.2	25.0	33.0
Rubber and plastic products	426.0	57.0	48.0
Consumer Goods	116.2	87.0	64.6
Food, beverages and tobacco	336.2	122.0	124.2
Paper and paper products	87.3	31.0	20.0
Textiles, clothing and footwear	231.8	102.0	35.0

B. Key Sectors, 1989	Effective rate of protection	Coverage by non-tariff barriers
Agriculture	13.9	58.2
Mining (including oil)	-0.7	74.9
Non-oil manufacturing	63.6	50.8
All tradeables	15..0	55.1
Import-competing sectors	44.4	–
Export-competing sectors	-6.4	–

direct foreign investment. Financial markets were also further liberalised and the government cut its share of total investment to 37% by 1990 compared with 48% in 1981 [Bhattacharya and Pangestu (1992)].

91. The Indonesian trade and industry policy reforms of the late-1980s went some way towards returning Indonesia to the East Asian development model. The reforms were associated with a surge in non-oil exports which rose to 74% of total exports by 1991. Manufacturing exports expanded from 12% to 45% of the total during 1985-91, outstripping hydrocarbons, while other primary products rose to 29% of the total. Within manufacturing, textiles overtook plywood in

importance to account for 14.5% of total exports. RBI provided a third thrust in manufactured export diversification, but the economic benefit is undercut by capital and input subsidies [Hill (1990)]. Moreover, a key labour-intensive product - electronics - unexpectedly lagged the export diversification.

92. Nevertheless, Indonesian investment, investment efficiency and GDP growth all recovered in the late-1980s: GDP grew at more than 6% during 1986-91 while the ICOR improved to 4.8 compared with 7.8 during 1982-85 [Bhattacharya and Pangestu (1992)]. The imperative to develop a competitive manufacturing sector was underlined by the fact that growth in the agricultural sector, which had acted as a useful cushion in the early-1980s, slowed to 3.1% during 1986-91. This reflected the fact that few opportunities remained to extend irrigation and intensify production (but the estate sector managed to grow almost 50% faster than agriculture as a whole).

93. Although the sharp oil price fall of 1986 caused the Nigerian economy to experience a negative shock on a similar scale to that faced by Indonesia, the outcome was very different. Nigeria had repeatedly postponed adjustment to softening oil prices after 1981. The exchange rate was strongly overvalued in 1986 by which time the foreign exchange reserves were depleted, debt arrears had cumulated and oil dependence was total. Despite mounting administrative problems, the Nigerian government sought to control both trade and foreign exchange allocation. Abuse of the system was so widespread that it was estimated that less than one-quarter of Nigeria's foreign exchange was expended on the imports for which it was allocated - a revealing index of policy efficiency.

94. Two three-year IMF agreements followed which failed to achieve stabilization, however. The value of the naira depreciated in real terms from a peak in 1984 of twice its 1970-72 value to barely one-half the earlier level in 1987 (one-quarter the 1984 peak) and to one-third by 1990. A start was made on easing foreign exchange controls, phasing out NTBs and lowering the average tariff. Import controls remained on 20% of manufactured goods and more than 30% of farm products while the average tariffs were 36% and 40%, respectively [Meier and Steel (1989)]. But sizeable variations remained with the principal beneficiaries being steel, some chemicals, transport equipment and footwear. Moreover, inefficient RBI projects like Ajaokuta Steel (costing over four times its original $1.4 billion budget) continued to attract scarce resources into the 1990s, while a $2.4 billion aluminium smelter (twice the costs of a competitive plant) was proposed.

95. Despite the real depreciation of the exchange rate in the early-1990s, Nigeria's import-dependent factories required protection and faced foreign exchange shortages and low capacity use. Manufacturing output recovered only weakly to 18% above its 1981 level while agriculture (which still employed the bulk of the workforce) performed well below its potential. It was unable to meet either the country's food needs or to generate exports and it too continued to rely on protection.

96. Continued policy uncertainty in Nigeria deterred investment which languished at only 7.5% of GDP. Although economic growth resumed and averaged 5.7% during 1987-91, non-oil exports remained weak. In 1991 oil still accounted for 96.5% of exports as well as 80% of government revenues and 28% of GDP, a very high level of mineral dependence. Foreign debt exceeded GDP and more than one-third of the country's foreign exchange earnings were absorbed by debt

service. Nor did any immediate improvement appear likely: the discredited military government prepared to hand power back to civilian politicians amid claims that the 1991 Iraqi oil windfall had been wasted and that any tax increases would be similarly abused [Financial Times (1993)].

97. The contrasting responses of Indonesia and Nigeria to the mineral boom and downswing demonstrate the importance of orthodox macro policies in preventing the cumulation of fiscal and external imbalances. They also show how booms encourage rent-seeking in the manufacturing sector even in prudently-run economies and the cushion which a large competitive agricultural sector can provide during downswings when it is well-managed. In both cases, RBI was disappointing with the exception of joint-ventures (such as Indonesia's LNG) where efficiency criteria prevailed and ensured that rents were not used to mask inefficiency in the use of labour and capital. Indonesia was able to reform its protected dualistic industrial sector whereas Nigeria could neither establish competitive manufacturing nor revive its agricultural sector because of the legacy of the Dutch Disease effects.

98. Overall, Indonesian sectoral policies towards agriculture proved more beneficial than those of Nigeria, and were less damaging towards manufacturing, in large part because they could be more effectively applied within a relatively stable macroeconomic framework. Nigerian investment in rural infrastructure was complemented by neither a stable macro environment nor policies which enhanced agricultural productivity, while the high levels of effective protection secured by manufacturing only served to entrench rent-seeking behaviour and postpone adjustment.

2.2.3 Downswing Adjustment in Mid-Income Chile and Peru 1970-90

99. To some extent, the external shocks experienced by the ore exporters were the mirror image of the oil shocks. Copper prices peaked in real terms in the late-1960s and then declined with especially sharp falls occurring in 1974 and 1982. Yet despite pre-conditions which favoured Peru and the similar scale of the shocks in the two countries, Charts A1.6 and A1.2 2(Appendix 1) show a diverging long-term economic trajectory with Chile out-performing Peru in the 1980s. Chile experienced an abrupt economic contraction (under Allende) followed by a sustained economic strengthening, despite a major policy error during 1979-82. In contrast, the Peruvian pattern was one of an accelerating economic weakening which reached disastrous speed in the late-1980s.

100. In the early-1970s the Peruvian economy was more diversified, had a higher level of investment and faced much better growth prospects than that of Chile. Table 2.2.5 shows that in 1970-72 Peruvian dependence on the mineral sector was less than that of Chile (or Jamaica). Minerals provided 48% of Peruvian exports compared with 86% for Chile and 64% for Jamaica. The Peruvian rate of investment in the early-1970s, at 20% of GDP, was 2% higher than that of Chile while Peruvian economic growth was 4.7% annually compared with 4.1% for Chile (whose economy was entering a period of sharp contraction in the aftermath of the Allende populist boom).

101. If long-term economic growth was primarily determined by external conditions, rather than the policy response, then the initial economic advantage of Peru over Chile should have been compounded by the subsequent negative external shocks (calculated as the change in export prices multiplied by the share of exports in GDP). The first shock was considerably milder

TABLE 2.2.5

TRENDS IN MINERAL DEPENDENCE, 1970-88
(per cent)

	1970-2	1979-81	1986-8[a/]
Chile			
Share of GDP	7.4	8.6	9.1
Share of exports	85.7	56.2	51.4
Share of revenue	6.7	12.5	7.6
Mineral dependence index	33.3	25.8	22.7
Jamaica			
Share of GDP	10.8	14.2	8.8
Share of exports	63.5	75.1	49.2
Share of revenue	10.0	20.1	22.2
Mineral dependence index	28.1	36.5	26.7
Peru			
Share of GDP	10.1	15.2	10.6
Share of exports	47.6	62.6	52.3
Share of revenue	6.7	13.5	3.5
Mineral dependence index	21.5	30.4	22.1
	Share of manufactured exports in total exports		
Chile	5.0	8.6	9.1
Jamaica	46.6	60.0	65.8
Peru	1.5	16.3	20.4

Source: Country Ministries; for manufactured exports data, World Bank.

Note: a/ 1986-7 for Peru and Jamaica

TABLE 2.2.6

EXTERNAL SHOCKS 1974-8 AND 1979-83
(per cent of GDP)

	Trade shock 1974-8	Trade and interest shock 1979-83		
		Trade	Interest	Total
Chile	-10.6	-1.9	-4.2	-6.1
Jamaica	2.4	-10.2	-3.7	-13.9
Peru	-4.3	-3.2	-2.7	-5.9

Source: World Bank 1989a

for Peru than for Chile because Peru produced hydrocarbons and was less mineral-dependent than Chile, as shown in Table 2.2.6. The second shock, which includes the rise in interest rates as well as changes in the terms of trade, was 5.9% of GDP for Peru, similar in scale to that experienced by Chile.

102. In addition to a stronger economy and a milder first shock than Chile, Peru had a strong military government which was committed to reforms that addressed Peru's excessively unbalanced income distribution, whereas Chile was characterised by political weakness in the early-1970s. Yet the Peruvian economic growth rate slowed to 2.9% during 1973-81 and dropped to -0.2% during 1982-89 with a sharp deceleration as shown in Chart A1.22. In contrast, Chilean growth was 2.5% over the period 1973-81 and 2.4% over 1982-89. Moreover, the latter figures mask a strongly accelerating trend, as shown in Chart A1.6, because it includes a massive GDP contraction in 1982 (caused by a policy error discussed below). The inverse relationship between economic performance and the pre-conditions and external shocks is consistent with the pre-eminent role of policy in determining the performance of mineral economies.

2.2.3.1 Macroeconomic Policy: Shifts to Orthodoxy during 1973-82

103. Chilean macroeconomic policy was both more orthodox and more consistent than that of Peru. In the aftermath of the Allende populist boom and as copper prices weakened Chile moved quickly to adopt orthodox policies during 1974-75. The government stabilised the economy: it cut public sector expenditure from 45% of GDP to 24% between 1974 and 1978 and shrank the fiscal deficit from 25% to 0.8% of GDP [Ministry of Finance (1989)]. The real exchange rate was devalued to a competitive level and maintained until the late-1970s by a crawling peg adjustment.

104. Economic liberalization commenced with the easing of price controls during 1973-75, the freeing of interest rates and the lowering of quotas and import tariffs. Chile's success was aided by radical tax reforms which included low and uniform import duties, a 20% value added tax and a 49% corporation tax. Meanwhile, privatization of state enterprises (SOEs) began but Chile's copper SOE (Codelco) was excluded. It should be noted, however, that a less secure government than that of Pinochet might have been unable to sustain these policies. For example, the Chilean reforms initially widened income inequality, although income distribution was still far more equitable than in Peru [Corbo and de Melo (1987)].

105. Peru reacted more slowly to the post-1973 economic difficulties than Chile. There was less pressure on Peru to stabilize promptly first, because its economy was stronger than that of Chile and second, because the negative impact of the first oil shock was smaller. Third, Peru attracted a sharp inflow of foreign capital for oil exploration which eased pressure to respond to the trade deterioration. But the measures taken proved inadequate and Peru tightened its policies during 1976-80 under an increasingly strongly pro-orthodox financial team [Lago (1990)].

106. Both governments made a similar policy error in the late-1970s when, in the expectation of a mineral boom, they used a strengthening of the real exchange rate to combat the anticipated inflationary effects of the boom, as shown in Charts A2.6 and A2.22. At the same time, they liberalised their capital markets. The policy proved to be a disadjustment because the trade liberalization (justified, in part, to dampen inflation) exposed domestic manufacturing and agriculture to foreign competition under decreasingly favourable circumstances as the real exchange rate

appreciated. This sapped the ability of the non-mining tradeables to offset the mineral sector's decline during 1981-82 when the mineral boom failed to occur. Sharp recessions involving GDP contractions in excess of 10% occurred, as shown in Charts A1.6 and A1.22, in both Chile (1982) and Peru (1983). Both countries then sought IMF assistance under difficult conditions because they had become heavily indebted.

2.2.3.2 Macroeconomic Policy: Responses to the Debt Crisis

107. Chile responded swiftly to the debt crisis and tempered its underlying orthodox policy stance with more pragmatic measures. The government intervened in the banking system to avert its collapse (largely a result of high foreign lending to a severely weakened manufacturing sector). The exchange rate was devalued and import tariffs were raised to 40%, but as a temporary measure to give a protective breathing-space to the manufacturing sector and to raise extra public finance. In addition, in order to shore up copper revenues, a strong expansion of Codelco was sanctioned so that falling copper prices would be offset by higher production. Meanwhile, public spending was cut and efforts were redoubled to monitor the efficiency of domestic investment programmes, both public and private.

108. Under IMF prompting, Chile established a Mineral Stabilization Fund (MSF) in 1985 which was activated in 1987, as shown in Table 2.2.7, and accumulated $1.75 billion by late-1989. The MSF set a base price for copper of $0.75/lb in 1988. The Chilean Treasury sterilized some fifty percent of the revenues if the price was between $0.06/lb and $0.10/lb above the base price and 100% of any inflows if the price was more than $0.10/lb above the base level. If prices fell below the base level, the Treasury could draw down revenues in a mirror image to that of saving during an upswing. In this way, the MSF limited the extent to which elected politicians could distort economic management for short-term electoral advantage. A further step in this direction was the granting of greater autonomy to the central bank in 1989.

109. By 1985, some three years after the economic nadir, the Chilean economy was recovering rapidly and in the late-1980s it was widely regarded as Latin American 'best practice'. It had a sustained high rate of economic growth, falling debt, high levels of economy-diversifying investment and a relatively efficient mineral sector regarded as only one of several internationally competitive sub-sectors within the Chilean economy. The Chilean policy may be summarised as a bold liberalization within a pragmatic macroeconomic framework, albeit with a regression following the excessive appreciation of the exchange rate during 1978-82.

110. Peru reacted more strongly than Chile against bold orthodox policies in the wake of the 1978-82 disadjustment. The Belaunde government launched a large public sector investment programme to consolidate its political position after the 1980 election. The programme got under way before stabilization was complete and before inflation was under control. Thereafter, fiscal balance proved difficult to achieve - even under pressure from the IMF. When economic growth faltered, the liberalization drive was reversed, but not temporarily as in Chile, and it regressed to a quota system of protection in 1984.

111. Inflation remained very high and domestic patience with (half-hearted) orthodox measures snapped, ushering in the populist Garcia government. Garcia launched a populist boom in 1985 which resembles that of Chile in 1971-73, Jamaica in 1972-76 and Brazil in 1985-89. The boom triggered a sharp rise in real wages but degenerated into an inflationary spiral with exchange rate

TABLE 2.2.7
CHILE GOVERNMENT REVENUE BY SOURCE 1970-88
($ billion)

	Direct taxes	Indirect taxes	Non-tax revenue	Copper	Customs duties	Total	Copper (per cent)
1970	0.506	1.132	0.116	0.506	0.259	2.519	20.1
1971	0.684	1.358	0.164	0.072	0.098	2.375	3.0
1972	0.486	1.280	0.145	0.045	0.127	2.082	2.2
1973	0.566	1.172	0.158	0.030	0.260	2.187	1.4
1974	0.623	1.243	0.277	0.248	-	2.391	10.4
1975	0.674	1.388	0.105	0.192	-	2.360	8.2
1976	0.515	1.384	0.062	0.352	-	2.313	15.2
1977	0.564	1.252	0.068	0.314	-	2.499	12.6
1978	0.604	1.682	0.150	0.253	-	2.688	9.4
1979	0.752	1.713	0.126	0.509	-	3.104	16.4
1980	0.842	1.963	0.255	0.519	-	3.579	14.5
1981	0.915	2.290	0.417	0.219	-	3.842	5.7
1982	0.809	1.926	0.312	0.192	-	3.239	8.6
1983	0.559	2.070	0.152	0.244	-	3.025	8.1
1984	0.560	2.345	0.130	0.166	-	3.241	5.1
1985	0.563	2.598	0.182	0.162	-	3.504	4.6
1986	0.572	2.795	0.289	0.185	-	3.841	4.8
1987	0.554	3.024	0.401	0.238	-	4.218	5.6
1988	0.482	2.939	0.592	0.637	-	4.649	13.7

Source: Budget Office, Chile Ministry of Finance

appreciation, mounting (and counter-productive) state intervention and alarming deteriorations in the fiscal and current account deficits. The policy alienated external lenders so that foreign borrowing could not be used to ease the subsequent adjustment.

112. Peruvian macroeconomic policy has therefore exhibited sizeable changes in direction of the kind detrimental to long-term economic performance [Ranis and Mahmood (1992)]. But Chile and Peru both show that bold orthodox policies can inflict considerable damage. That damage comes from adherence to sectoral neutrality and the equilibrating role of the exchange rate which assumes, however, that the economic sectors of pre-NIC developing countries can adjust smoothly to external shocks. The structuralists are correct to be sceptical of the capacity of the non-mining sectors to respond resiliently to sharp changes in external conditions-especially when the macroeconomic response is tardy and diversification into competitive non-mining tradeables has been stunted.

2.2.3.3 Sectoral Policy: Chile's Linear Liberalization

113. The case for actively promoting economic diversification in mineral economies, based on the damaging effect of sudden large shifts in the exchange rate, is reinforced by considerations of sustainable development [El-Serafy and Lutz (1989)]. From the perspective of long-term devel-

opment, the mineral sector needs to be viewed as an economic bonus with which to pursue competitive diversification. Whatever the wisdom in theory of high levels of mineral dependence, the empirical evidence suggests that mining should not be conceived as the backbone of the economy. Chile's liberalization caused agriculture (which had generated less than half of the output expected of it in 1972) to increase its share of GDP from 6% to a still modest 8% over the period 1972-88, as shown in Table 2.2.8. It did so through diversification into high-value exports crops rather than through protected domestic food crops as favoured elsewhere in Latin America. In addition to fruit exports, a rapid expansion in fish and forest-based exports also occurred. But the modest expansion of agriculture underlines the critical importance of manufacturing for the diversification of mid-income mineral economies.

114. Chilean manufacturing did strengthen substantially: although 1972 data do not show any legacy of earlier Dutch disease (since manufacturing, at 26% of GDP was 5% above the expected norm), little of its output had been globally competitive. Consequently, although manufacturing's share of GDP shrank to 21% over 1972-88, Chile had become internationally competitive and viewed itself as an effective export competitor - in specific areas - with other Pacific Rim producers.

115. Liberalization brought a rapid decline in Chile's initial high rates of effective protection as shown in Table 2.2.9. Most of the reduction occurred when domestic demand was flat in 1975-76 and manufacturers had little alternative but to turn to export markets. The policy initially brought a marked decline in the output of highly protected industries, notably textiles, footwear, leather products and transport machinery - all of which saw their output halved during 1973-80. Smaller, but still significant declines also took place in chemicals, rubber, electronics, electrical goods and machinery [Gwynne (1985)].

116. Real expansions in output of 40% or more occurred, however, in Chilean resource-based industry like metals, refined products, timber-based products and construction goods. These changes in output were accompanied by sizeable productivity gains since total manufacturing output remained constant in real terms while employment declined by one-fifth. After intervention to prevent the sector's collapse after the 1978-82 disadjustment, growth in manufacturing output accelerated from 4.7% per year during 1983-85 to 7.4% annually during 1986-88 (CEPAL 1989).

117. The growth of Chilean non-mining exports which began in the mid-1970s persisted and helped reduce mineral dependence. The share of copper in total exports fell from 85% to 55% during the period 1970-88 while the share of other primary product exports rose from 3% to 13% and that of manufactured exports grew from 11% to 30% as shown in Table 2.2.10. In addition, the diversification of resource-based exports caused some decentralization of investment out of the Valparaiso-Santiago axis which had accounted for more than two-thirds of the country's industrial production in the 1960s. This reflected the relative decline during liberalization of import substitution industries oriented to the principal domestic market in Santiago [Gwynne (1985)].

2.2.3.4 Sectoral Policy: Peruvian Regression

118. Successive Peruvian governments since the 1960s have made excessive recourse to taxation and other measures in order to extract resources from competitive sectors like mining [Lago

TABLE 2.2.8

TRENDS IN PRODUCTION STRUCTURE, 1970-88

(per cent of GDP)

	Norm	Actual 1972	Actual 1980	Actual 1988
Chile				
Agriculture	14.7	6.2	7.2	8.3
Manufacturing	21.3	26.4	21.4	21.0
Construction	6.2	5.4	5.2	5.6
Services	50.5	54.6	57.6	56.0
Mining	7.3	7.4	8.6	9.1
Jamaica				
Agriculture	17.2	7.1	8.2	8.3
Manufacturing	20.3	18.3	16.6	18.2
Construction	6.0	11.8	5.8	6.4
Services	49.0	52.0	55.2	58.3
Mining	7.6	10.8	14.2	8.8
Peru				
Agriculture	22.8	13.8	10.2	13.3
Manufacturing	18.1	21.6	20.2	20.0
Construction	5.5	6.3	5.7	5.8
Services	45.9	48.3	48.7	50.3
Mining	7.7	10.1	15.2	10.6

(1990)]. This was a double error: it weakened the viability of mining but neglected the efficiency with which the redeployed resources were used in the non-mining tradeables. In contrast, Chile's Codelco, while experiencing some interference from the military government, retained sufficient commercial autonomy to sustain its investment and even to expand its production [Auty (1993)].

119. The structure of the Peruvian economy changed little between the early-1970s and early-1980s: agriculture was around two-thirds the norm and manufacturing (at 20% of GDP) was slightly above its norm as shown in Table 2.2.8. Despite limited land reform and transfers of resources into the agricultural sector, domestic food production failed to match demand while key exports such as sugar and cotton fell. Trends in protection levels for Peru during 1973-88 show some modest reduction through the late-1970s before reverting to the original high levels. Peruvian trade and industry policy almost invariably discriminated against mining and, more fitfully, agriculture [Larrain and Sachs (1991)].

120. Peru failed to sustain competitive diversification and remained heavily dependent on mining. Although manufacturing exports expanded from 3% to 28% of the total through the late-1970s, that expansion ceased after 1982 (unlike Chile) when trade policy reverted to a more inward-oriented stance. Meanwhile the export share of non-mining primary products (a key feature of Peruvian strength in the early-1970s) declined sharply as shown in Table 2.2.11.

TABLE 2.2.9

PROTECTION AND TRADE OPENNESS IN CHILE
(per cent)

	1967	1974	1979
Effective Protection			
Consumer goods	138.8	189.7	13.2
Intermediate goods	172.9	139.6	14.0
Machinery and transport equipment	265.3	96.0	13.0
Equally weighted arithmetic mean	176.7	151.4	13.6
Standard deviation	279.0	60.4	1.7

Openness	1929	1951-55	1965-70	1971-73	1974-79	1980-82
Share of foreign trade in GDP	66.3	21.7	24.0	20.3	36.1	32.6

Source: Corbo and de Melo (1987) p.114.

Worse, through the 1980s the Peruvian mining SOEs were decapitalized by a combination of price controls (disastrously inept in the case of Petroperu) and penal taxation which, for example, left Centromin with inadequate resources for either exploration or equipment maintenance. Those MNCs which had survived nationalization began to restrict investment and run down their assets under the Garcia government [Auty (1993)].

121. Ironically, when more orthodox stabilization measures were finally introduced after the defeat of the Garcia government in 1989, the capital repatriation which they triggered caused a sharp strengthening in the real exchange rate. Consequently, despite the adoption of orthodox macroeconomic policies, competitiveness in all tradeables sectors was corroded. Intervention to sterilize the capital inflows was urgently required to support the transition to a competitive economy.

122. The contrasting experience of Chile and Peru confirms the primacy of a commitment to pragmatic macro orthodoxy and mineral revenue stabilization. It also shows how difficult it is for mid-income mineral economies to re-expand traditional agriculture once it has shrunk below the Chenery and Syrquin norms. This requires the manufacturing sector of mid-income countries to undertake the diversification which prudent policy dictates. In this respect, however, Chile's commendable performance may be atypical, reflecting the capacity of its varied and rich natural resource base to achieve RBI diversification. Less well-endowed mid-income countries like Jamaica (see Section 2.2.5) may wish to preserve maturation incentives for emerging manufacturing sectors provided they have the administrative capacity to pursue an East Asian competitive industrial policy and avoid the rent-seeking abuses.

TABLE 2.2.10

CHILE, EXPORT TRENDS 1970-88

	1970	1976	1982	1988	1970	1988
	($ millions)				(% share)	
Minerals	954.0	1417.6	2123.7	3848.3	85.6	54.6
Copper	839.8	1233.2	1684.6	3416.2		
Nonmining Primary	32.8	111.2	374.9	930.4	2.9	13.2
Agriculture	30.1	103.9	311.6	799.2		
Forestry	1.3	1.5	2.2	2.6		
Fishing	1.4	5.8	61.1	178.6		
Manufacturing	124.9	579.8	1125.3	2114.0	11.2	30.0
Foodstuffs	28.7	119.4	365.8	757.5		
Timber	8.9	37.3	122.3	310.8		
Paper	33.3	137.5	219.6	416.9		
Chemicals	7.8	67.1	87.5	186.3		
Basic Metals	23.5	120.7	243.8	223.5		
Engineering	20.9	89.9	73.2	186.7		
Total	1111.9	2115.6	3705.7	7051.8	100.0	100.0

Source: Superintendencia de Aduanas (1989)

TABLE 2.2.11

PERU, EXPORT TRENDS 1970-88

	1970	1976	1982	1988	1970	1988
	($ Billions)				(% share)	
Total	1.034	1.341	3.293	2.694	100.0	100.0
Primary products	1.000	1.204	2.531	1.938	96.7	71.9
Minerals	0.465	0.684	1.312	1.192	45.0	44.2
Oil products	0.700	0.500	0.719	0.166	0.7	6.2
Agriculture	0.157	0.262	0.219	0.167	15.2	6.2
Fish	0.303	0.168	0.202	0.364	29.3	13.5
Other	0.680	0.400	0.790	0.490	6.6	1.8
Manufactured products	0.340	0.137	0.762	0.756	3.3	28.1
Textiles	0.100	0.310	0.281	0.258	0.1	9.6
Fish products	0.700	0.270	0.980	0.960	0.7	3.6
Food processing	0.800	0.170	0.700	0.970	0.8	3.6
Machninery	0.100	0.180	0.500	0.250	0.1	0.9
Chemicals	0.600	0.160	0.650	0.730	0.6	2.7
Metals	0.300	0.140	0.105	0.150	0.3	5.6
Other	0.800	0.140	0.930	0.570	0.8	2.1

Source: Superintendencia de Aduanas (1989)

2.2.4 Resource Based Industrialization in Venezuela

123. Venezuela confirms the problems posed by the legacy of Dutch Disease for mid-income mineral economies. It also very clearly illustrates the unfulfilled expectations from RBI. Dealing briefly first with the legacy of Dutch Disease effects, Venezuelan agriculture on the eve of the oil shocks was barely three-fifths of the Chenery and Syrquin norm while its manufacturing sector was two-thirds of the norm. Yet both the principal non-oil tradeable sectors were protected from global competition and oil provided 86% of the country's exports in 1972. The weakness of the non-oil tradeables was heightened by the deployment of the oil windfall. This is because Venezuela, like most oil exporters, sought to diversify its economy largely through state investment in ambitious RBI projects. The private sector was left to compete for rents in an economy in which the prospect of changes in government resulted in a potentially unstable trade regime and in which, as events turned out, by the mid-1980s virtually the only globally tradeable product was oil.

2.2.4.1 Over-rapid Windfall Absorption

124. Venezuela received relatively modest windfalls from the oil shocks which were equivalent to 11% of non-oil GDP during 1974-78 and 9% during 1979-81, as shown in Table 2.2.1. Although the government prudently earmarked half the oil revenues for long-term saving and established the Fondo del Inversiones Venezuela (FIV) as a repository, actual saving fell well short of that goal. FIV received 35% of the windfall revenues in 1974, less in 1975, nothing in 1976 and 10% in 1977. By that year the seeds of the financial crisis which broke in the early-1980s had already been sown. This is because Venezuela used its windfall to accelerate its existing programme of SOE-dominated diversification in Ciudad Guayana, but without an adequate investment monitoring system.

125. The Ciudad Guayana growth pole in the remote northeastern part of the country accounted for nine-tenths of Venezuelan RBI investment which, in turn, exceeded that expended on either infrastructure or oil and gas exploration, the country's two other major windfall investments. The SOEs resorted to overseas financing on a mounting and imprecisely monitored scale in order to avoid delays on expenditure imposed by the opposition-dominated congress. This increased the executive's difficulty in controlling the pace of windfall absorption. Instead of saving half the windfall from the first oil shock in 1974-78, Venezuela absorbed virtually all of it, as shown in Table 2.2.1 (compare lines one and four), and also expanded its foreign debt which reached $26 billion by 1984 [Gelb (1988)].

126. The opposition won the 1979 election and introduced deflationary measures and some modest trade liberalization in order to dampen inflation in anticipation of the impact of the new RBI projects. But the windfall deployment had significantly boosted the real level of consumption in Venezuela (by 17% in the first oil boom compared with the pre-shock trend, according to Table 2.2.1, and by even more during the second boom). Inflation therefore persisted so that a rapid appreciation of the exchange rate occurred through the early-1980s as shown in Chart A2.28. This contributed to the large cost overruns of the Ciudad Guayana industrial complex.

2.2.4.2 RBI Performance

127. Venezuela invested almost $7 billion in its Ciudad Guayana metals projects with most (four-fifths) going into the 5 million tonne integrated steel plant, as shown in Table 2.2.2. The rest went into four aluminium projects comprising a brown-field smelter expansion, a greenfield smelter, a greenfield alumina refinery and a new bauxite mine. The 8,000 MW Guri hydro scheme was also constructed nearby, accounting for an additional $7 billion of investment. In terms of employment, the heavy industry generated 22,000 direct jobs which was 87% of the number projected. But, consistent with inflated estimates of RBI multipliers elsewhere [Auty (1990)], secondary manufacturing created only 5,000 jobs, barely one-third the projected level, as shown in Table 2.2.12.

128. The start-up of the greenfield smelter was marred by the over-rapid indigenization of management which resulted in the pot-lines being frozen, incurring $80 million in damages and lost sales. Although the new alumina refinery started up efficiently under the supervision of Alusuisse, the investment was twice the projected amount. The smaller brown-field smelter expansion also experienced a severe cost overrun. However, by the late-1980s a combination of large devaluations, as shown in Chart A2.28, and cheap input prices, notably electricity, had transformed the initially high-cost Venezuelan aluminium industry into one of the world's cheapest producers.

129. The Venezuelan government estimated the return on smelting at 33% by 1987, but this resulted in part from cheap pricing of energy and alumina along with favourable exchange rate conditions. For example, power was charged at 0.6 cents per kwh whereas estimates of marginal costs ranged from 1.4 cents to 3.2 cents; or again, imports and debt service were allowed at the preferential rate of 7.50 bolivars to the dollar while export revenue was exchanged at the 20 bolivar rates [Hausmann (1990)]. If the assets are included which were invested in the refinery and hydro dam (apportioned to smelting), where returns were respectively around 6% and 1%, it halves the return on smelting to 17%. That still overstates the real return, however, because the assets are stated in depreciated bolivars and so understate the real resources employed.

130. Given the total sums invested, the aluminium projects carry high opportunity costs, a situation which is compounded by the much more disappointing performance of the SOE (Sidor) steel plant. The fourfold expansion of the Sidor steel plant took twice as long as expected to build. The cost overrun was 50% and the total investment was around $5 billion. Construction outstripped the country's resources of skilled technicians and managers so that production at the existing mill declined as personnel were redeployed to cope with mounting problems in the new plant. Two-thirds of the extra steel capacity involved Mexican-designed reduction units of a scale never before built: the units had still to achieve one-third of their rated capacity five years after the scheduled completion.

131. Despite cheap energy inputs and favourable exchange rates, the operating costs of the new steel mill were high. Materials usage was inefficient and overmanning was rife (twice global manning levels and at European wages). The resulting detrimental high operating costs, when added to the cost overrun and low capacity use, depressed Sidor's financial performance. By 1983, Sidor's cumulative losses exceeded $1.8 billion and the firm did not make an operating profit until 1986, following the adoption of the favourable exchange rate structure.

TABLE 2.2.12

VENEZUELA: GUAYANA REGION EMPLOYMENT STRUCTURE, 1965 PROJECTION AND 1984 OUTTURN

Sector	(1) Projection -1965	(2) Outturn -1984	Actual/ projection (ratio)
	(number employed)		
Heavy industry			
Mining	6,900	4,542	0.66
Energy (and utilities, 1984)	900	4,171	4.63
Heavy manufacturing	26,000	22,658	0.87
Total	33,800	31,371	0.93
Agriculture	5,500	5,010	0.91
Secondary industry	14,000	5,144	0.37
Construction	7,600	17,893	2.35
Services	29,100	117,957	4.05
Total Employment	100,000	177,375	1.77
Total population	357,000	753,172	2.11

Sources: (1) Blanco and Ganz (1969); (2) CVG (1986: III-44 and IV-4-4)

Notes: Ratio of heavy manufacturing to secondary manufacturing: (1965) 1.86; (1984) 4.40.
Ratio of heavy manufacturing to total employment: (1965) 0.26; (1984) 0.13; and to total population: (1965) 0.07; (1984) 0.03.

132. Overall, Venezuela invested $7 billion in the Guayana metals complex plus a further $7 billion in the Guri hydro project and an unspecified amount in the regional infrastructure. The projected return on capital had been 15%, but the hydro dam barely covered its depreciation and operating costs while returns on steel, which dominated the RBI, were negative. Nor was the disappointing return on the RBI projects compensated by the sector's role as an economic catalyst, as the disappointing expansion of secondary manufacturing cited above shows. Although the RBI multiplier is frequently cited in support of RBI investments in oil-exporting countries, feasibility studies in support of that contention are rare or non-existent.

133. Table 2.2.12 sheds some light on the multiplier from Ciudad Guayana's heavy industry. Although the city had grown to twice its planned population size by the mid-1980s, the additional jobs were overwhelmingly in construction and services. As noted above, although employment in heavy industry was close to the original projection, jobs in secondary (linked) industry were barely two-fifths of the target. The weak manufacturing multiplier can in part be explained by factors peculiar to Venezuela. First, the mismanagement of the windfall deployment pushed domestic demand well below expectations. Second, Sidor opted for a wider range of products than is usual in a steel plant. Finally, the Ciudad Guayana region is remote from the country's principal markets in the northwest. While the first reason might not have been foreseen, the other two reflect basic planning errors.

134. But in other important respects the Venezuelan experience is similar to that of other oil-exporting countries which launched ambitious RBI strategies. It was assumed that RBI would have a comparative advantage and that, if necessary, the mineral rents could be used to compensate for higher labour and capital costs by pricing the resource input below world levels. RBI plans were therefore over-optimistic and paid scant attention to the real returns on investment and the implied opportunity costs. Implementation was inefficient, cost overruns were high and investment into the linked downstream activity was muted and strongly lagged [Auty (1990)]. The results were likely to be worst where, as in Venezuela, RBI investment was dominated by steel (as opposed to petrochemicals) and executed by SOEs without adequate MNC participation. For example, in contrast to Venezuela, Saudi Arabia's $45 billion Al Jubail complex (mainly petrochemical joint-ventures between SABIC and MNCs) started up within budget and on time. Yet even that more efficient outcome did not compensate financially for high overheads (caused by very high infrastructure costs) and low prices (which reflected excess global production).

135. RBI also has considerable inertia, as was seen with the Nigerian steel plants and as is shown by the Venezuelan decision in the late-1980s to invest a further $11 billion in hydro smelting. The Venezuelan decision was justified on the grounds that the country had no alternative use for the specific skills accumulated in Ciudad Guayana. The expansion was, however, curtailed because the unification of the exchange rate in 1989 and the elimination of a debt for equity swap (which had implied a 60% subsidy on investment) required an unplanned infusion of public capital. The curtailed investment reflected Venezuela's decision to emulate Mexico and liberalise its economy in 1989, a move which reversed the rapid intensification of protection which had (as in most oil-exporting countries) accompanied the 1981-86 collapse of oil prices.

2.2.5 Slow Diversification in Jamaica

2.2.5.1 Mismanaged Mineral Rents

136. Where RBI is not a viable option, then diversification must occur through the traditional non-mining tradeables. Moreover, given the risks of mineral-driven development, it is prudent to promote long-term economic diversification even when mineral reserves are large and a country appears to be in the early stages of the mineral production cycle. Jamaica shows, however, how difficult it can be for a small mid-income mineral economy to achieve such economic diversification.

137. In the early-1970s, the Jamaican government mistakenly perceived itself to be still in the early stage of the mineral extraction cycle. It imposed a levy on bauxite in 1974 which heightened the country's mineral dependence. The levy was linked to the world aluminium price rather than to the profitability of the Jamaican alumina refiners. It was set at 7.5% of the price of a short ton of aluminium and made Jamaican alumina refineries relatively high-cost. The aluminium MNCs calculated that the levy over-estimated the rent on Jamaican bauxite by at least one-third. The bauxite levy accelerated the long-term loss of Jamaica's global bauxite market share, which fell from 20% in the early-1970s to 7% by the late-1980s. Moreover, the levy was also associated with a sharp fall in the quantity of production over the period 1973-86, as shown in Table 2.2.13.

138. The long-term decline in Jamaica's market share reflected the operation of two sets of factors: first, intensified competition from newer bauxite producers like Guinea and Australia,

TABLE 2.2.13

JAMAICA: BAUXITE/ALUMINA OUTPUT AND REVENUES, 1970-89.

	1970-73	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Production								(million tons)									
Bauxite	12.59	15.32	11.37	10.28	11.43	11.71	11.57	12.05	11.68	8.15	7.72	6.50	6.21	6.95	7.70	7.26	9.65
Alumina	2.05	2.78	2.27	1.64	2.04	2.11	2.09	2.45	2.55	1.75	1.85	1.75	1.51	1.57	1.82	1.51	2.22
Exports								(US$ million)									
Bauxite	91.2	104.6	149.6	187.5	205.3	234.0	213.5	197.4	172.1	170.0	109.2	159.7	77.5	90.1	112.5	111.8	111.0
Alumina	145.4	297.8	324.8	237.8	323.2	348.3	368.2	554.7	588.1	343.8	314.63	283.8	212.2	205.4	224.0	354.9	474.9
								(US$/ton)									
Bauxite	12.15	13.4	27.2	29.8	32.1	36.6	33.4	32.6	32.0	41.7	41.7	35.3	33.3	30.7	30.4	32.3	26.3
Alumina	72.02	106.4	135.3	148.6	161.6	165.9	175.3	226.6	230.6	196.5	165.6	165.0	131.0	120.0	136.0	201.0	212.0
Value Added Bauxite/Alumina								(J$ billion)									
real (1974)	0.14	0.18	0.14	0.11	0.13	0.14	0.14	0.15	0.16	0.11	0.11	0.11	0.09	0.09	0.10	0.09	0.13
current	0.13	0.18	0.21	0.22	0.30	0.50	0.61	0.67	0.52	0.33	0.26	0.66	0.56	0.90	1.14	n.a.	n.a
Levy total	-	0.13	0.14	0.18	0.11	0.20	0.23	0.23	0.3	0.19	0.19	0.48	0.28	0.46	0.33	0.39	0.36
								(per cent share)									
Mining/GDP	9.9	9.1	8.4	8.7	7.4	7.6	7.6	8.9	8.8	6.2	6.1	6.2	5.2	5.2	5.4	5.0	6.7
Mining/Exports	63.7	58.0	60.4	69.8	70.4	73.3	71.4	78.0	78.0	65.2	61.8	63.1	50.9	50.1	47.5	52.9	58.7
Levy /GDP	-	-	6.1	5.6	3.0	3.7	7.2	5.4	4.9	5.7	3.5	5.1	2.5	3.5	2.1	3.0	2.1
Levy/Revenue	-	-	23.2	21.3	13.2	16.9	25.8	20.5	19.3	20.2	12.2	17.9	8.9	10.5	5.9	6.6	4.6

Source: World Bank (1989) for 1970-87; JBI for 1988-89.

and second, the maturation of aluminium demand in Jamaica's principal markets (the southern United States and Europe). During the global recession of the mid-1970s, the aluminium MNCs concentrated their output reductions on their high-cost Jamaican operations. In effect, Jamaica now became a swing producer of bauxite and alumina. In other words, a substantial fraction of Jamaican productive capacity was used to meet cyclical peak demand and was shut down when that demand declined.

139. The bauxite levy yielded 22% of total government revenues in fiscal years 1974-76. The Jamaican government set up a capital fund which it planned to use for long-term investment in the aluminium sector and also to diversify the economy. However, chronic fiscal weakness resulted in most of the resources leaking swiftly into current expenditure, a situation which persisted until the levy was reformed in 1988. By then the contribution of the levy to GDP had fallen to 3% as shown in Table 2.2.13, barely one-half of what it had been expected to yield when it was imposed. In 1988 the levy was halved to 3% of the realised aluminium ingot price and charged as a cost of production. The MNCs then paid 33% corporate tax on profits, so that the principal weakness of the levy, namely its inadequate link to profitability, was removed. The reformed levy was part of a broadening of the tax base which removed many of the poorest from payment of income tax and cut the formerly high marginal tax rates (to boost incentives).

2.2.5.2 Postponed Macroeconomic Adjustment

140. The macroeconomic response of successive Jamaican governments to the long-term fluctuations in the country's economic fortunes was tardy, reflecting persistent over-optimism concerning long-term prospects. The imposition of the bauxite levy lay behind a 3% improvement in the Jamaican terms of trade during 1974-78 which yielded a positive shock that was equivalent to 2.4% of GDP, compared with a negative shock of 10.6% for Chile, for example. The extra revenues from the levy permitted the Jamaican government to sustain a populist boom during 1972-76, as shown in Chart A1.12, like that engineered by the Allende government in Chile during 1970-73. But Jamaican recovery from the damaging aftermath of the boom was much more protracted, so that Jamaica's productive assets were run down for far longer than those of Chile.

141. The yield from the bauxite levy almost halved during 1977 when the MNCs cut back on their Jamaican production. By then the Jamaican economy urgently required stabilization but far from adjusting swiftly to the economic deterioration, as Chile did in the mid-1970s, successive Jamaican governments hesitated. Jamaica finally squared up to the need for far-reaching structural change only in 1983. Like other mineral economies, Jamaica disadjusted during 1979-81 in anticipation of higher mineral revenues which failed to materialise. Having fallen precipitantly during 1977-79, as shown in Chart A2.12, the Jamaican real exchange rate was allowed to appreciate by 50% during1980-83 and the current account deficit doubled to 12% of GDP, before the exchange rate fell sharply once more.

142. In fact, far from booming, Jamaican bauxite production almost halved during 1980-85 while foreign exchange earnings fell by more than three-fifths over the same period, as shown in Table 2.2.13. The negative external shock which Jamaica experienced during 1979-82 was 21% of GDP, compared with negative shocks equivalent to 7% of GDP for Chile and 3.5% for Peru [(according to Balassa and McCarthy (1984)]. By the mid-1980s, the Jamaican ratio of debt to

GDP had reached 1.8 and the ratio of debt service to exports was 49%, about twice the maximum manageable level according to the IMF.

143. Robinson and Schmitz (1989) suggest that sustained economic recovery began in Jamaica in 1985. Their case finds some support from the facts that the public sector deficit was virtually eliminated in the late-1980s while the current account deficit also shrank to less than 2% of GDP by 1989. However, real GDP growth averaged 1.0% over 1982-89, only a modest improvement on the annual decline of 1.0% over 1973-81, as shown in Chart A1.12. The performance of the Jamaican economy in the late-1980s is the more disappointing because it occurred despite both a rebound of the bauxite sector and a sustained high rate of investment. The feeble performance reflected the weakness of the Jamaican non-mining tradeables.

2.2.5.3 Tardy Diversification

144. Jamaican production of export crops such as sugar and bananas declined steadily through the 1970s as a consequence of the appreciation of the exchange rate, nationalization of the sugar sector and declining agronomic practises. As with Peru, so Jamaican agricultural policy deliberately discriminated against export crops and in favour of domestic food self-sufficiency, irrespective of the country's comparative advantage. Export crop output contracted and what was produced was dependent on EC price support and was not globally competitive. Meanwhile, the productivity of the remaining acreage declined so that although food output expanded, it did so at relatively high cost. The share of agriculture in GDP increased very modestly from 7.1% to 8.3% during 1972-88, but this was barely half the gain achieved by Chile.

145. The nationalization of sugar, the main crop, led to mounting labour problems. Output fell to one-third its 1965 peak level, a rate of decline which was swifter than the general 40% fall in sugar production throughout the Caribbean. Jamaican sugar production costs were around $430/ tonne in the late-1980s compared with world prices of $230 per tonne and a target price in the protected EC market of $290/tonne. Nor did Jamaica's second export crop, bananas, fare much better: output suffered from poor administration by the state marketing board. Meanwhile, efforts to transfer 80,000 hectares of land into intensive high value food crops for the US market failed through a lack of vertical integration and severe marketing problems.

146. Yet, manufacturing did little to compensate for the poor agricultural performance because, like many resource-rich countries, Jamaica had tolerated slow industrial maturation within an over-protected environment. In fact, manufacturing output slumped by one-quarter during 1973-80 and the sector's average rate of effective protection in 1980 was 58%. The rate varied widely, being negative for textiles and wood products, goods in which Jamaica had a potential comparative advantage.

147. Investor confidence remained low through the early-1980s in the absence of a commitment to a competitive exchange rate for manufacturing because protective barriers were to be phased out by 1987. Import licenses were abolished on most goods in 1984-85 and most price controls were eliminated by 1987. Import duty exemptions were eliminated in favour of export incentives which included an import duty rebate or duty deferral for exporters. Tariffs were to be streamlined to four bands ranging from 5% to 30% by 1992.

148. Despite the expansion of free-trade-zone exports like garments, the manufacturing sector did no more than hold its share of GDP constant at around 16.5% during 1980-89. A brief growth spurt in the mid-1980s, spearheaded by textiles and with food processing also prominent, was not sustained. Apparel exports jumped ten-fold during 1983-87 to around $180 million, mostly reflecting the import of US materials for assembly in the export processing zones. But domestic added value was estimated at barely $25 million, mostly in the form of local labour paid around $25 for a forty hour week. By the early-1990s, the Jamaican government felt that the country did not need a manufacturing sector. This seems an over-reaction to the earlier industrial policy failure.

149. Whereas Chile moved swiftly to provide a sound macroeconomic environment and to create a competitive manufacturing sector from the mid-1970s, Jamaica procrastinated until the mid-1980s. By then the scale of investment required to compensate for a decade of inadequate industrial investment was formidable and seems unlikely to occur in the absence of an active industrial policy. The mismanagement of the bauxite rents has therefore left Jamaica with very high debt and an inadequate base in manufacturing and agriculture with which to service it – and to ride out new external shocks. Tourism and bauxite remain the twin pillars of the economy – as they had been in the 1960s. But tourism like bauxite, is notoriously volatile.

2.2.6 Unsustainable Development in Zambia

2.2.6.1 Cumulating Macroeconomic Problems

150. Zambia exhibits strong parallels with Nigeria, namely, volatile but tardy macroeconomic policy shifts, very weak non-mining tradeables, and a sharp decline in real per capita income as shown in Chart A1.30. Yet Zambia could ill-afford the resulting heightened reliance on mining because Zambian copper reserves were estimated sufficient for twenty years of production in 1990 - on a declining trend. Moreover, the viability of the mining sector was severely damaged through the 1970s and 1980s.

151. In the early years following independence in 1965, international copper prices were roughly twice Zambian production costs [Kydd (1989)] and yielded high rents which set patterns of investment and consumption which proved unsustainable. Zambia was also unusually dependent on its mineral sector: minerals comprised 95% of exports in the early-1970s compared with 64% for Jamaica and 46% for Peru. The Zambian government was therefore prudent in setting up a mineral stabilization fund and it also had some initial success in revenue diversification. Between 1966 and 1974, it extended income taxes from 10% to 18% of recurrent revenues while sales/ excise taxes rose from 12% to 23% [Kaplan (1981)]. Zambia still ran a budget deficit equivalent to 5.2% of GDP during 1970-74 when copper prices fell and it unwisely abandoned the stabilization fund in 1972.

152. The net effect of Zambian government policy in the first decade after independence, when copper prices were relatively high, was to deploy the shrinking rents from copper to expand a powerful urban rent-seeking constituency whose income from state mines, factories and offices outstripped productivity growth. The government interpreted the mid-1970s copper price fall as temporary and concentrated on stabilization rather than long-term economic restructuring. Despite public expenditure cuts, the budget deficit averaged 15% of GDP during 1975-79 and foreign borrowing was the principal adjustment mechanism to falling copper prices. Zambia's

total foreign debt tripled during 1974-79 to exceed total GDP, more than twice the ratio for Chile. With the renewed decline in copper prices in the 1980s, Zambian debt reached a level of 370% of GDP in 1987 and forced the country to request IMF assistance.

153. Although the real exchange rate declined to barely two-fifths of its 1980 value by 1985, as shown in Chart A2.30, the IMF still regarded it as too high for the scale of economic restructuring required [Ndolo and Norton (1987)]. Quotas were removed from fifty items and tariffs were narrowed to a 15-100% range, with most imports carrying a duty of 30-40% [MacBean (1987)]. Exporters located in non-urban areas were granted maximum income tax relief and were allowed to retain half their foreign exchange.

2.2.6.2 Inadequate Diversification

154. Pre-shock progress in reducing the country's dependence on copper was minimal. Non-mining exports - mostly agricultural - accounted for less than 3% of total exports in the early-1970s, with a declining trend. Although farming employed almost two-thirds of the population, it generated less than 13% of GDP in 1972 - well below the Syrquin and Chenery norms for a country at a similar level of development. Agricultural production barely kept pace with the rate of population growth: rural incomes declined in real terms after independence and were only one-fifteenth the urban average in 1970 [Dumont and Mottin (1983)]. Consequently, like Nigeria, Zambia squandered the potential safety net which a large agricultural sector provides for low-income mineral economies.

155. Zambia had difficulty in achieving a compensatory re-expansion of its prematurely shrunken agriculture. The sector increased its share of GDP by just 1.6% during 1972-88, barely half the gain made by Chile. Moreover, in sharp contrast to Chile, Zambian agriculture failed to significantly expand its exports. Nor could the overly protected manufacturing sector provide much compensation. After growing strongly through the first decade of independence, real manufacturing output stagnated through the next decade and grew modestly at 3.4% per annum thereafter. Like Nigeria, the sector's high import dependence rendered it vulnerable to foreign exchange shortages. Capacity use fell to 30% by the mid-1980s [Financial Times (1985)] when only textiles and clothing produced higher volumes than a decade earlier [Dewar and Seshamani (1987)].

156. Zambia's weak manufacturing sector reflected persistently high levels of protection. The effective rate of protection on manufactured goods in the mid-1970s averaged 160%, as shown in Table 2.2.14, a remarkably high level, with capital and intermediate goods generally below the average and consumer goods well above [Karmiloff (1990)]. Yet protection actually increased when copper prices declined in the mid-1970s and reform was postponed once more. By the 1980s only wood products and food products were potentially globally competitive [Ndolo and Norton (1987)]. Zambian consumer durable goods and heavy intermediates had domestic costs around three times world levels [Karmiloff (1990)]. Manufacturing efficiency was also depressed through ownership by low-autonomy state enterprises which accounted for 55% of production. Price controls, investment licensing and negative real interest rates favoured large capital–intensive production units. But as domestic demand shrank, the state manufacturing firms faced low capacity use, overmanning, inefficient management, frozen prices and inadequate cash flow.

157. Liberalisation after 1982 cut state enterprise losses where capable managers were given free rein to set prices and hire workers [Dewar and Seshamani (1987)]. New investment was

TABLE 2.2.14

ZAMBIA: EFFECTIVE PROTECTION RATES 1975

	(per cent) [a]
Consumer goods, of which	
food products	67.3
other non-durables	342.4
durables	472.9
Light intermediate goods	182.5
Heavy intermediate goods	29.8
Capital goods	59.7
All goods (unweighed)	160.6

Source: World Bank (1984b: Tables 3.3 and 3.6)

Notes: a/ Expressed in ad valorem terms

TABLE 2.2.15

ZCCM FINANCIAL PERFORMANCE, 1972 TO 1979

	Output (million tonnes)	Sales ($ billion)	Net profit ($ billion)	Net profit as % of assets
1972	0.701	0.755	0.164	19.00
1973	0.683	0.936	0.204	19.00
1974	0.710	1.493	0.452	37.00
1975	0.648	1.161	0.141	9.00
1976	0.712	0.859	-0.600	-0.31
1977	0.659	1.028	0.290	2.00
1978	0.654	0.807	-0.260	-2.00
1979	0.584	1.116	0.113	7.00
1980	0.611	1.329	0.172	10.00
1981	0.568	1.312	0.680	4.00
1982	0.581	1.061	-0.189	-11.00
1983	0.563	0.866	-0.128	-6.00
1984	0.532	0.723	0.100	0.00
1985	0.544	0.760	0.100	0.00
1986	0.514	0.681	-0.800	-0.20
1987	0.523	0.850	-0.680	–
1988	0.473	1.439	0.450	–
1989	0.416	–	–	–

Sources: M. Radetzki, State Mineral Enterprises: An Investigation into their Impact on InternationalMineral Markets, Resources for the Future, Washington, DC, 1985, for data for 1972-82; R. Gulati, Impasse in Zambia: Economics and Politics of Reform, EDI Development Policy Case Series, 2, World Bank, Washington, DC, 1989, for data for 1983-1986; and the Financial Times, 'Lack of foreign exchange hits Zambian copper, 30 June 1988; 'Zambian corporation lifts copper output', 12 October 1986; and 'ZCCM posts 500% increase in profits', 27 June 1989.

required, however, along with the more efficient use of existing plant but, as in Nigeria and Jamaica, it was deterred by macroeconomic uncertainty. Foreign exchange shortages, rising inflation and difficult market access made for daunting prospects for export-oriented manufacturing. Zambian comparative advantage lies in the processing of non-metallic minerals, metals and food [Dewar and Sheshamani (1987)], but agriculture holds better growth prospects.

158. Growth prospects are especially favourable for peasant farming where a wedge had been driven by government subsidies between comparative advantage and the actual production. The government emphasised maize at the expense of other crops in a misguided effort to spread the green revolution. Yet the heavily leached acidic soils in the northern part of the country made maize less suitable than millet, sorghum and root crops [Dumont and Mottin (1983)]. Meanwhile, the maize pricing policy absorbed large subsidies, notably of imported fertilizer. A third problem arose from the parastatals which inefficiently distributed farm inputs and marketed produce.

159. The supply-side failure of the Zambian economy was compounded by the corrosion of the mining sector during the country's protracted stabilization after the 1974 price shock. Zambia's share of the global copper market fell from 11% during 1969-71 to 4.7% during 1986-88, a decline which was more than offset by the expansion of Chile which doubled its market share to 21%. Unlike Chile's Codelco, ZCCM had inadequate managerial autonomy and lacked profit-related tax policies. The corrosion of the commercial efficiency of the state mining firm was gradual rather than abrupt. Although output fell through the 1970s, the number of copper industry workers actually rose by 20% to 57,750. From 1975, ZCCM skimped on maintenance partly to contain losses and partly in response to inadequate foreign exchange allocations. Under-funding also resulted from a mineral tax which was meant to syphon off 'windfall' revenues following the mid-1980s devaluation. The tax penalized ZCCM because it was unrelated to profitability and efficiency, as shown in Table 2.2.15. But the government came to rely heavily on it because it provided one-quarter of government revenues in 1986.

160. Consequently, the weakened Zambian mines remain the backbone of the economy as they approach the end of their life. It would certainly have been preferable to regard the mines as an economic bonus with which to accelerate the competitive diversification of the non-mining tradeables sector.

2.2.7 Conclusion

161. Performance of the mineral economies is compatible with the 'resource curse' thesis which suggests that the richer the resource endowment [Auty forthcoming]:

- the longer time lax macroeconomic policies are tolerated (because of optimistic prospects as compared with resource-poor countries);
- the greater the tolerance of a slow-maturing competitive manufacturing sector;
- the longer rent-seeking groups are accommodated -- which, once entrenched, block reform;

- the more erratic economic performance becomes due to the inability of manufacturing to generate sufficient foreign exchange or to be profitable without covert transfers.

162. Such uni-causal theories certainly over-simplify, but they can usefully highlight key causal factors. Moreover, it should be stressed that the resource curse thesis is not a law, merely a strong tendency. With appropriate policies it is possible to avoid the problems, as is shown by Indonesia and - albeit less surely - Chile.

163. At the macro level, Indonesia and Chile show that a pragmatic orthodoxy which adheres to fiscal prudence and current account equilibrium is required to minimise the potentially harmful effects of the mineral sector and so to successfully harness it for long-term development. The policy error made by Chile during 1979-82 underlines the risks to the non-mining tradeables sectors arising from an exchange rate that is driven by volatile mineral prices. Policy would therefore seek to reduce the extent to which such abrupt shifts in foreign exchange earnings and taxation occur through the operation of a stabilization fund.

164. Trade and industry policies have proven to be both sensitive to macro policy and of secondary importance. Within the context of a pragmatic orthodox policy, they can promote efficiency improvements, as in the case of Indonesian agriculture, and achieve rapid reform, as with Indonesian (and Mexican) manufacturing. But where the macroeconomic framework is deficient, their effectiveness is likely to be diminished at best (as with Nigerian agriculture) and strongly negative at worst, as with industrial policy in Nigeria, Jamaica, Venezuela and Zambia. Protective sectoral policies in a weak macroeconomic environment exacerbate the legacy of Dutch Disease effects and run counter to the competitive diversification which the sustained long-term development of mineral economies requires. The mineral sector should be seen as a bonus which can accelerate competitive diversification and not as the permanent backbone of the economy.

165. Efforts to use windfall rents to diversify into RBI have rarely been successful: over-ambitious plans invariably strain domestic implementation capacity, depress RBI returns and deter the projected linked downstream investment. Yet the successful diversification of the Chilean economy may owe much to the opportunities provided by the country's resource endowment. Small mid-income economies with narrow resource bases like Jamaica are more constrained in their choice of diversification options and may need to devise a competitive industrial policy, with tapered incentives, in order to enhance their prospects. Such countries are likely to find re-expansion of their agriculture difficult while the legacy of neglect may stifle industrial investment. Consequently, active sectoral policies to promote competitive manufacturing may be required.

166. Large, well-managed low-income economies such as that of Indonesia, might pursue an active industrial policy along the lines of the East Asian development model. Intervention using tapered incentives as hard constraints on performance may be used to accelerate backward integration into heavy and chemical industry [but via a Drive, rather than a Big Push [Auty (1992)]. For low-income countries like Zambia, a policy of infant economy support may be more appropriate.

3. PROSPECTS FOR IMPROVED ECONOMIC PERFORMANCE

3.1 THE ARGUMENT TO DATE

167. The findings of the statistical section 2.1 can be summarised under three headings.

i. Trade and industrial policy

There was only a weak relationship between poor growth performance and high levels of protection of imports (including non-tariff measures) as measured by TPB.

ii. Real exchange rate level and variability.

Both short-run variability of the real exchange rate (ERV), and the deviation of the level of the real exchange rate from equilibrium values as measured by ERB, had a marked adverse effect on growth performance. In fact, those countries with a low ERV had on average over 1% faster growth in the 1960s and 1980s and over 4% faster growth in the 1970s compared with those with a very high ERV. In the 1970s, the order of magnitude of the effect of ERB and ERV on growth was about the same, as can be seen from the regression coefficients reported in Table 2.1.10 (last equation reported).

iii. Medium to long run Dutch disease effects.

The failure of the trend term, measuring the extent of a trend depreciation (lower) or appreciation (higher) real exchange rate, to yield significant coefficients in the regression analysis on growth suggests that there were no medium or long term Dutch disease effects in this sample of mineral exporting economies.

168. In contrast to the findings of the statistical section, the case studies discussed in section 2.2 have a variety of results, some of which are based on the empirical evidence from the case-studies, some of which are based on the author's judgement, or a combination of both. In summary form, the case-study findings were:

i. The 'mineral curse' hypothesis.

This hypothesis suggests that the higher endowments of minerals compared with other productive resources, the weaker will be both trade and industrial policy, and macroeconomic policy. This in turn will be reflected in a lower growth performance for those countries with the higher relative endowment of mineral resources.

ii. Pragmatic orthodoxy and fiscal prudence

The case studies suggested that pragmatic orthodoxy and fiscal prudence in macro economic policies can lead to an improved growth performance.

iii. Trade and industrial policy.

There is some evidence in the case study countries that the implementation of trade and industrial policies was sensitive to the macroeconomic environment. In particular, the case study experience with resource based industrialization (RBI) was not favourable, partly for macroeconomic reasons. However, there was no evidence from the case studies that an active trade and industrial policy could not succeed in the right macro economic and government policy making environment.

Reconciliation

169. It is not surprising that two different methodologies should produce some similar, some consistent and some contrasting results. There is, in fact, a striking degree of agreement on the central findings of the two empirical parts of this study. They are:

(i) Trade and Industrial policy

The findings of both the statistical and case-study analyses suggest that the direct and quantifiable effects of trade and industrial policy are dominated by the macroeconomic variables. The result is not really surprising since the size of the real exchange rate variations reflected in the ERV were large in comparison with the increased domestic prices over imported prices reflected in the TPB variable, particularly in the 1970's and 1980's. This was also evident from the case studies, where it was clear that macroeconomic shocks over-shadowed the stimulus given to industrialisation through trade and industrial policies. However, there was no statistical or case study evidence to suggest that an active trade and industrial policy, such as implemented in South Korea and Taiwan, could not succeed in the right macroeconomic and government policy making environment.

(ii) Macroeconomic policy

The statistical and case study evidence is entirely consistent. The statistical evidence suggests that macroeconomic policy has a significant and measurable impact on growth performance. However, the statistical evidence relates to an outcome variable, ERV, and a policy related variable ERB. In the case of the ERB, the clear policy implication is that, if a government pursues a fixed-peg exchange rate, it should only do this to the extent that it can adjust this peg so that the exchange rate remains close to the equilibrium exchange rate over time. The case studies do not elaborate in any significant way on the content of pragmatic orthodoxy and 'fiscal prudence', and the statistical analysis makes no comment on what policies could be pursued to lower the ERV. The policy elements which could achieve this include consistent monetary, fiscal and exchange rate policies, and the use of a mineral rent stabilisation fund to even out the impact of large short run fluctuations in mineral prices. Where private capital flows were an important part of exchange rate destabilisation, additional measures to neutralise such effects would also have to be undertaken, for example through resource rent stabilisation and by avoidance of high real interest rates which trigger a capital inflow.

(iii) 'Minerals Curse' and Dutch Disease Effects.

There was no evidence found in either the statistical or in the case study section of a medium or long-run 'minerals curse' operating through medium or long-run Dutch Disease Effects. This result was clear in section 2.1 where none of the regressions reported showed a statistically significant sign on the real exchange rate trend term.

170. However, there were no direct tests of the 'minerals curse' thesis. The thesis suggests that, the higher the mineral resource endowments relative to other endowments such as agricultural land, capital (both physical and human), the higher is the 'minerals curse' handicap on growth performance. Factor endowments (Heckscher-Ohlin) trade theory suggests that there will be a direct relationship between the share of mineral resources in total resource endowments and the share of minerals in total exports. A possible final step in the argument is that the higher the share of minerals in exports, the more vulnerable is the economy to price shocks transmitted from the world economy. Thus, an index of the degree to which any country suffers from the 'minerals curse' can be measured by the share of minerals in total exports. This export revenue share variable (ERS) was calculated from Table 1.1, averaging the data in that table in an obvious way to obtain an average ERS variable for each country in each of the periods 1965-72, 1973-81, and 1982-89. Regressions exploring the relationship between ERS (the independent variable) and growth (the dependent variable) were then estimated for each period, together with the relationship between the ERS variable and the exchange rate variability variable ERV.

171. On the face of it, there appears to be some empirical support for the 'minerals curse' thesis. About 25% of the variance in growth for all mineral exporting countries is captured by the ERS variable in 1972-81 and 1982-89, and the estimated elasticity of the growth rate with respect to a 1% change in the minerals export share was -1 and -1.5 in the two periods respectively. No significant relationship was found for the period 1965-72. This is in contrast to the lack of any significant statistical relationship between trade policy bias, exchange rate variability, exchange rate trend or black market premium (TPB, ERV, Trend, ERB) and growth in the whole sample for the second and third periods. However, it was argued in the discussion of those statistical results that the growth performance of 'young' mineral exporters was likely to be driven by exogenous factors, and that attention should be confined for the statistical analysis to the 'mature' minerals exporters. The results on the 'minerals curse' hypothesis should therefore be tested only for the 'mature' minerals exporters.

172. The regression analysis of the 'minerals curse' hypothesis for the 'mature' minerals exporters received some support for the period 1965-72. For this period, the share of variance of the growth rate explained by the export revenue share variable ERS was 25%, compared with 14% for the exchange rate variability variable ERV (see Table 2.1.10). When both ERS and ERV variables are included in the analysis, the ERV variable becomes insignificant; there is some co-linearity between the two variables. However, it should be recalled that there was very little real exchange rate variability in the 1960s; what variability there was is captured by the ERS variable. Similar but slightly stronger results were obtained for the group of mature exporters with consistent black market exchange rate data (mature (ERB)). Thus, there is some evidence to support the 'minerals curse' thesis for the period 1965-72. However, in the two periods 1973-81 and 1982-89, the ERS variable is dominated by the ERV variable and is insignificant when both variables are included in the regression. In the period 1973-81, there is strong collinearity between ERS and ERV; there is also some but weaker collinearity between the two variables in the period 1982-89.

173. The difficulty with the 'minerals curse' thesis in its bald form is that the mechanisms through which it works are not fully spelled out. It has already been suggested that the 'minerals curse' hypothesis is not associated with medium or long-run Dutch Disease effects. Another possible mechanism consistent with the above results is that the higher the share of export revenues from minerals, the larger are the price shocks transmitted from the world economy as mineral prices change, and therefore the larger are the real exchange rate variations. Thus the association of the ERV variable in the periods 1983-81 and 1982-89 might be taken as partial evidence in support of the 'minerals curse' hypothesis. The mechanisms which drove the relationship between growth and the minerals export share variable in the period 1965-72 have not been spelled out in this study.

174. Could the short run variability of the real exchange rate ERV be associated with a short-run Dutch Disease problem? In this case, it is the sustained short-run movements or a short-run Dutch Disease effect which puts a brake on growth due to rapid appreciation or depreciation of the real exchange rate which is out of line with medium to long run trends. This observation is consistent with the measured ERV effects to the extent that there was serial correlation of the residuals around the trend line. Inspection of these residuals suggests that short-run Dutch Disease effects, where the change in the real exchange rate was above or below the trend line for several years, was in many cases present. Thus, the evidence is consistent with the proposition that there was a short-run Dutch Disease effect.

175. What are the implications of these findings for sustainable growth in mineral exporting economies? Before answering this question, it is necessary to spell out more clearly what is meant by sustainable growth.

3.2 THE CONCEPT OF SUSTAINABLE GROWTH

176. In a thoughtful critique of different concepts of sustainability, Nordhaus (1992) examines a wide variety of definitions of what is meant by sustainable growth, ranging from those which emphasise the maintenance of the ecological system over the economic system to the requirements that consumption (including social consumption) be non-declining. He finds that these definitions of sustainability have many disadvantages over the standard economists' definition of what is meant by an optimal consumption path, the consumption path with the highest discounted present value of future consumption. Within the Nordhaus framework, it is quite possible to include as a part of consumption (i) ecological effects, (ii) intangibles such as culture, recreation and leisure, (iii) appropriately defined stocks and the shadow pricing of such stocks, (iv) appropriate definition of the rate of social time preference and specification of its relationship with market rate of return, and (v) allowance for possible declining paths of consumption of the better off in the interests of a rising level of consumption for the poorest. If this approach is adopted, the economist's definition permits trade-offs between ecological and other goals. It also have the advantage that there is a tradition of measurement of sustainable growth consistent with this definition of an optimal consumption path and which can be used to supplement existing measures of national income.

177. There are two approaches to the measurement of sustainable income, both due to Hicks (1939, p 171 and 175). The first refers to maximum consumption which can be attained whilst maintaining 'capital intact', and the second to the maximum 'consumption annuity' obtainable from a given set of resources available now and in the future. Nordhaus discounts the relevance

of the latter since it is only strictly applies to agents with an infinite life. Applying measurement of the 'capital intact' definition of sustainable growth to the national accounts of the United States, taking care to include physical capital, human capital and the net depletion of natural resources, as well as many of the components of consumption as possible under (i) - (iv) above, he finds that estimated post-war growth in the United States is increased by roughly 1/3 in the period 1950-65 and cut by roughly 1/3 in the period 1965-86. The differences between GNP and 'capital intact' growth rates in both periods arise mainly from the acquisition of capital assets in the first period, particularly the net addition of mineral reserves, and the running down of capital assets in the second period, particularly foreign assets. In both cases, the effects of the additional ecological variables tends to be small.

3.3 SUSTAINABILITY IN MINERAL EXPORTING ECONOMIES

178. The burden of the previous argument was that a wider definition of sustainability would have some importance for the measurement of sustainable growth in mineral economies, particularly in the proper accounting of the net depletion of natural resources (that is, new reserves less current production), and the full accounting of human capital resources. To what extent can the literature on sustainable development throw light on the appropriate measurement of growth? A first example is from Pearce and Atkinson (1992), whose sample of 21 countries includes 4 which are included in this study (Indonesia, Mexico, Nigeria and Papua New Guinea). In only two of these cases is the adjustment for natural capital depreciation large, for the external effects on coastal fisheries in Indonesia and on water pollution in Nigeria. The second example is a study by Repetto (1993). He argues for the case of Indonesia that proper resource accounting would show a lower rate of sustainable growth from the mid 1970s onwards. This argument is extended to other developing mineral economies. The other side of this coin is that the standard measure of GDP growth understates the rate of sustainable growth in mineral exporting countries when there is a net accumulation of natural resource assets, both through new discoveries and because of the appreciation of the value of assets following price changes such as after the oil price increase in 1973. It is also striking that neither the Pearce and Atkinson nor the Repetto studies correct for the failure of existing national accounts to measure the stock of human capital resources.

179. As with Nordhaus estimates of sustainable growth in the United States, proper accounting of natural resource assets can be a double edged sword. Striking also is the lack of attention to the proper accounting of human capital in some of the sustainable growth literature. It is not possible in this study to assess the importance of the lack of proper accounting of either mineral stocks and their net accumulation or depletion, or of human capital, for the measurement of growth, for macro economic management, or for economic policies for sustainable growth. However, issues raised in the some of the ecologically-driven sustainable growth literature, with apparently strong implication for economic policy in mineral exporting economies, may be misleading.

3.4 POLICY CONCLUSIONS

180. The evidence presented in the main body of the report in section 2, the further evidence provided in section 3.2, and the discussion of sustainable growth in section 3.3, suggest that the main findings of this report can be summarized as follows:

Macroeconomic Policies

181. The overwhelming finding of this study is the strong empirical link between real exchange rate variability and a lower growth performance. It is unlikely that this result, obtained by cross-section analysis, would be overthrown by proper measurement of the contribution of mineral resources to sustainable growth since similar influences are likely to be operating for all countries in any one of the three time periods examined. It follows that the first and most important policy focus for sustainable growth should be on macroeconomic policies which lower the variability of the real exchange rate over time. In this context, the use of a resource rent stabilisation fund to help iron out the worst of the short-run Dutch Disease effects is essential, combined with consistent monetary, fiscal and money exchange rate policies.

Investment for Sustainable Growth

182. Mineral exporting economies have underinvested in growth for the future. This can be seen, for example, in the comparison of investment shares in GDP for mineral exporting economies with appropriately defined Syrquin-Chenery norms based on averages for all developing countries. Thus, there is a case for increasing the investment share of income in these economies through effective resource rent taxation and other forms of taxation, as well as private domestic and foreign savings. A broadly based approach to sustainable growth suggests that proper accounting of mineral stocks and flows, and of human capital stocks and flows, is likely to provide a more accurate view of sustainable growth over time. An important part of a sustainable growth strategy in mineral exporting economies is likely to include an emphasis on investment in human capital. The ecologically-based sustainable growth literature, by measuring environmental degradation only, imparts a bias to the policy implications of the sustainable growth literature which may be unwarranted.

Trade and Industrial Policies

183. This report found no quantifiable association between highly protectionist trade and industrial policies and inadequate macroeconomic policies measured by the degree of real exchange rate variability. In the case studies, qualitative support was found for the effectiveness of trade and industrial policies in the context of macroeconomic stability. However, the lack of any clear cut findings on the effect of selective trade and industrial policies on growth, whilst not entirely a surprise, leaves a gap to be filled in further case study work on the more systematic quantification of the effects of selective trade and industrial policies. To the extent that trade and industrial policies are a part of a package which seeks diversification out of the mineral sector in line with dynamic comparative advantage, this can be worthwhile, but this study was not able to provide systematic quantitative evidence of the success of such policies in increasing sustainable growth.

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Appendix I

GROWTH PERFORMANCE: 1960-1990
REAL PER CAPITA GNP
(1980 DOLLARS)

CHARTS A1.1 TO A1.30

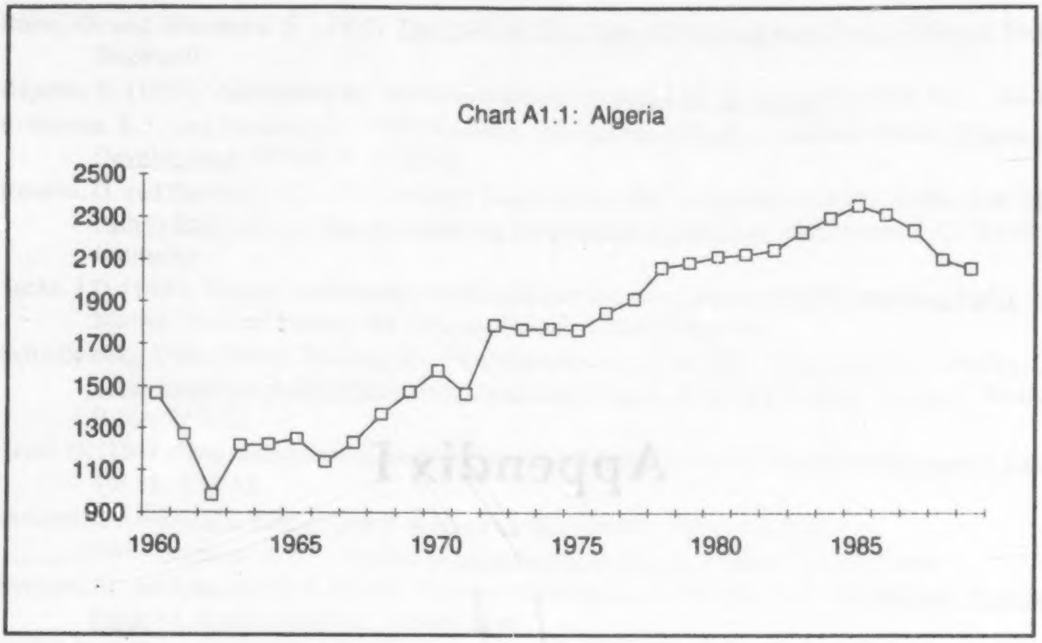


Chart A1.1: Algeria

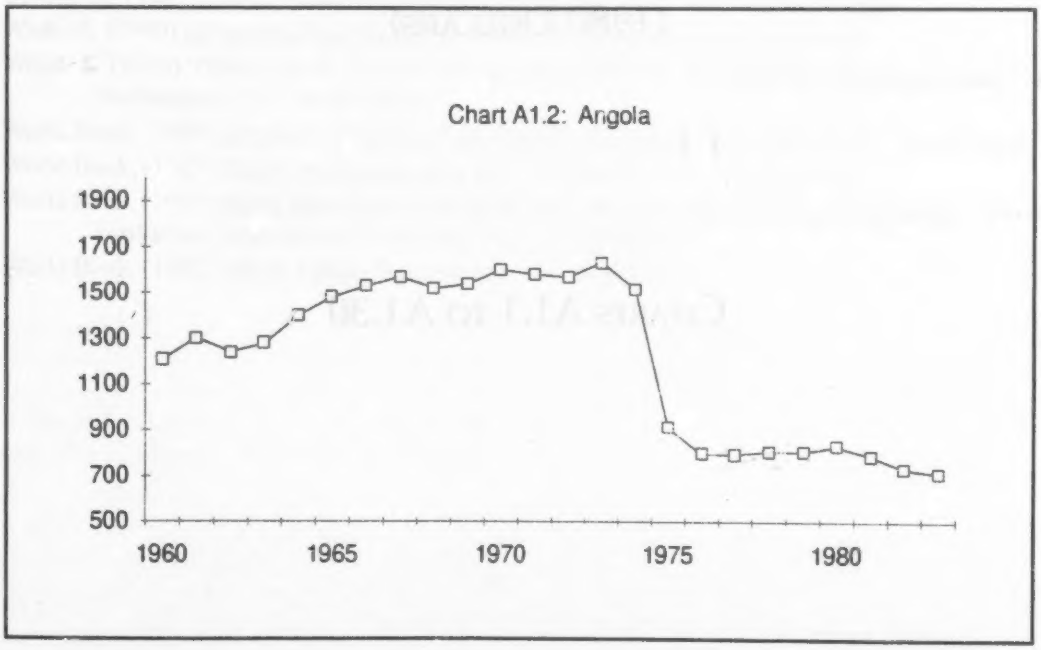


Chart A1.2: Angola

Chart A1.3: Bolivia

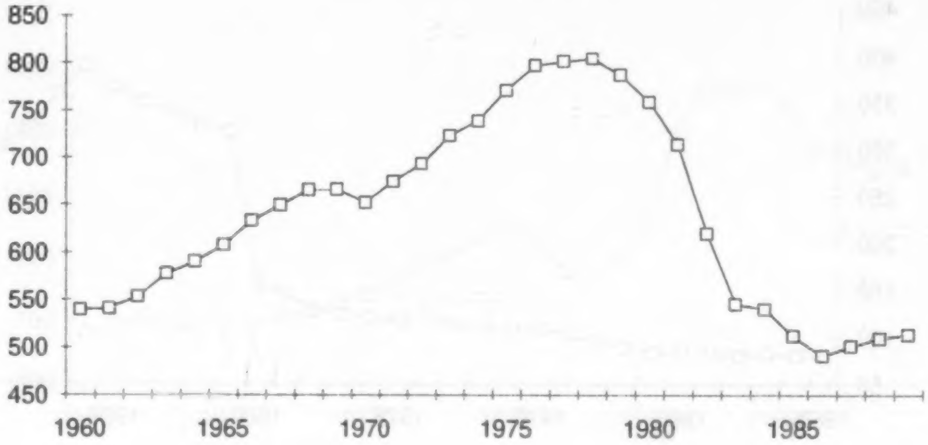


Chart A1.4: Botswana

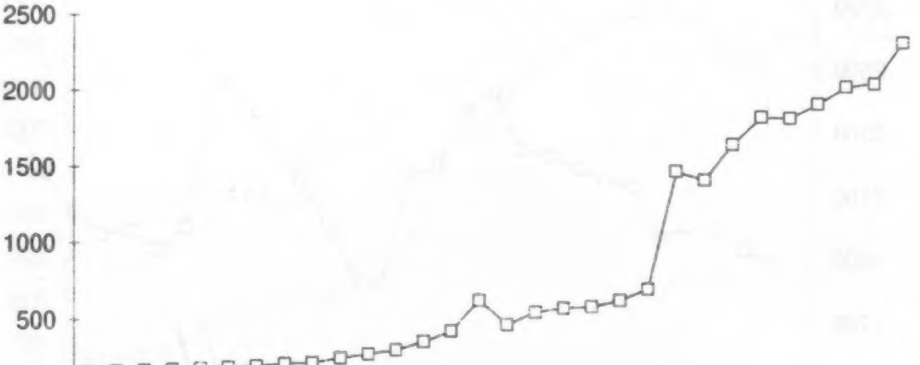


Chart A1.5: Cameroon

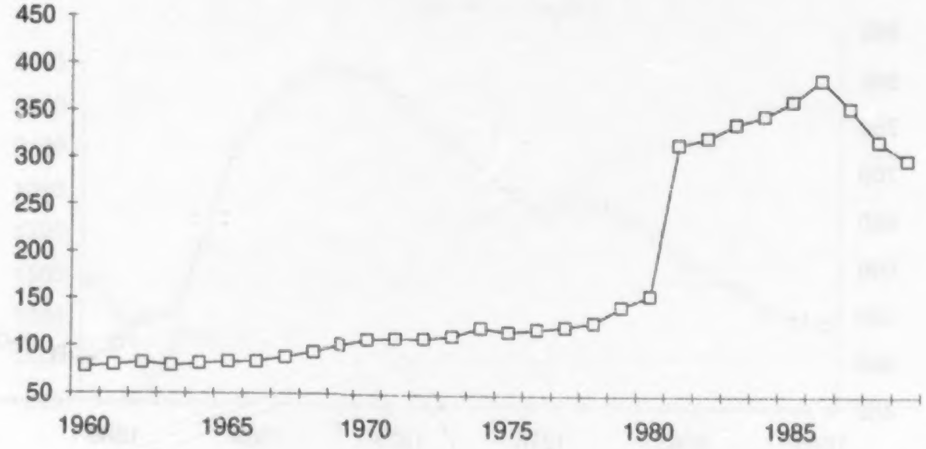


Chart A1.6: Chile

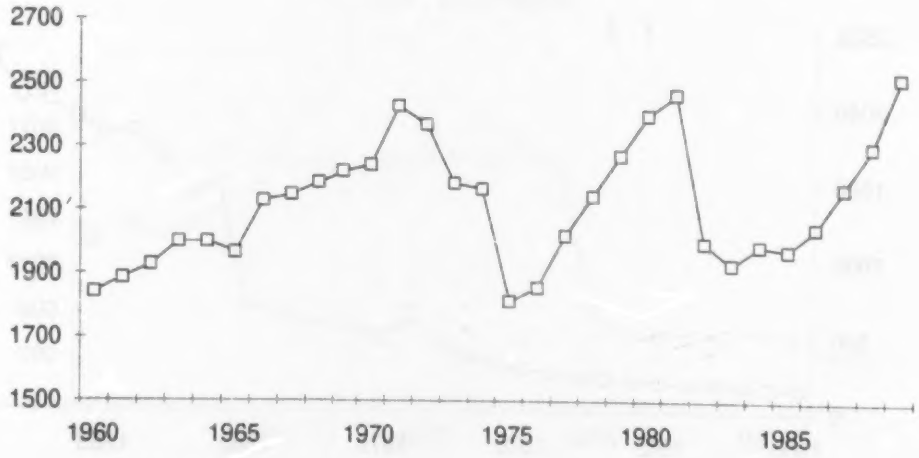


Chart A1.7: Congo

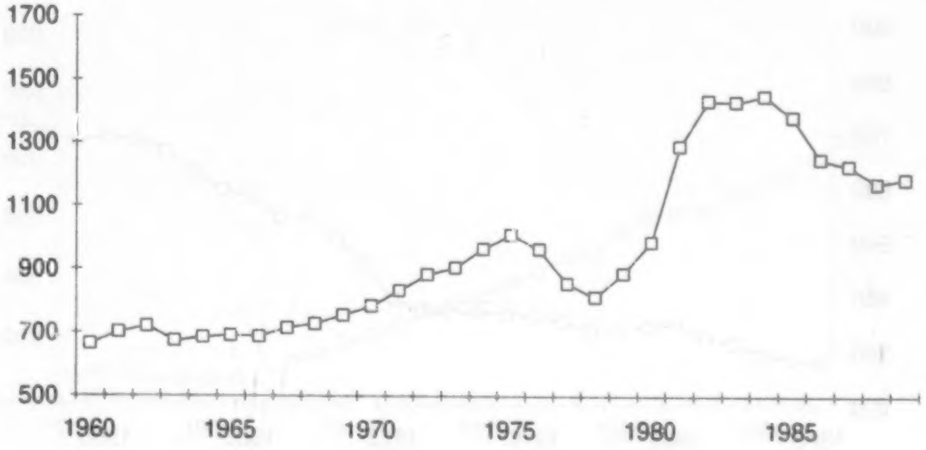
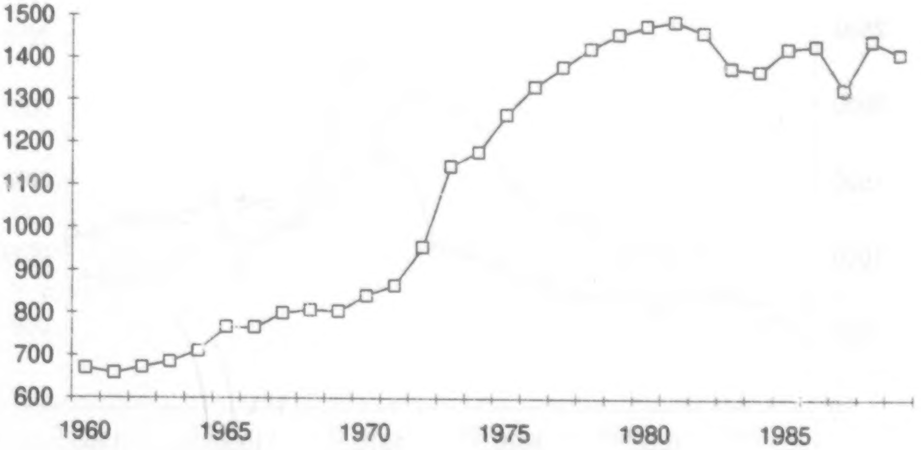


Chart A1.8: Ecuador



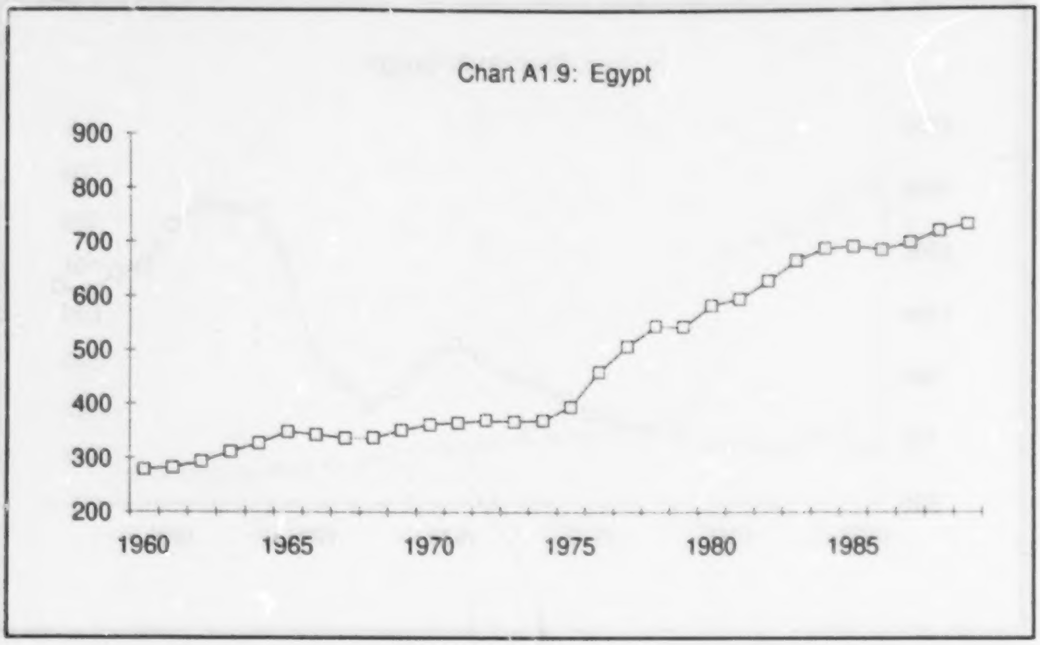


Chart A1.9: Egypt
900
800
700
600
500
400
300
200
1960
1965
1970
1975
1980
1985

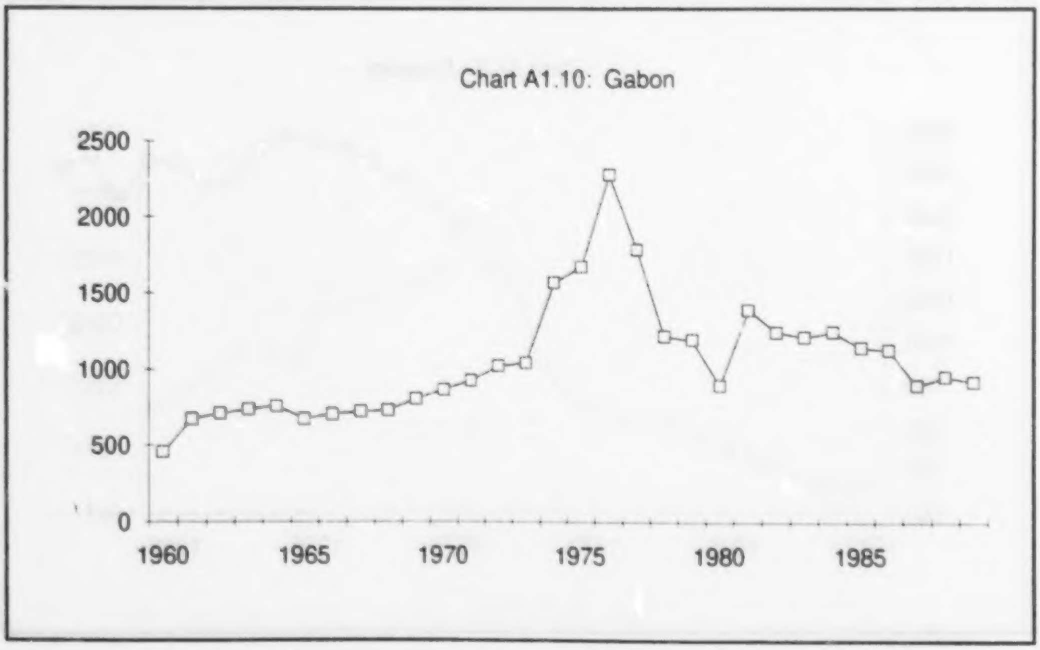


Chart A1.10: Gabon
2500
2000
1500
1000
500
0
1960
1965
1970
1975
1980
1985

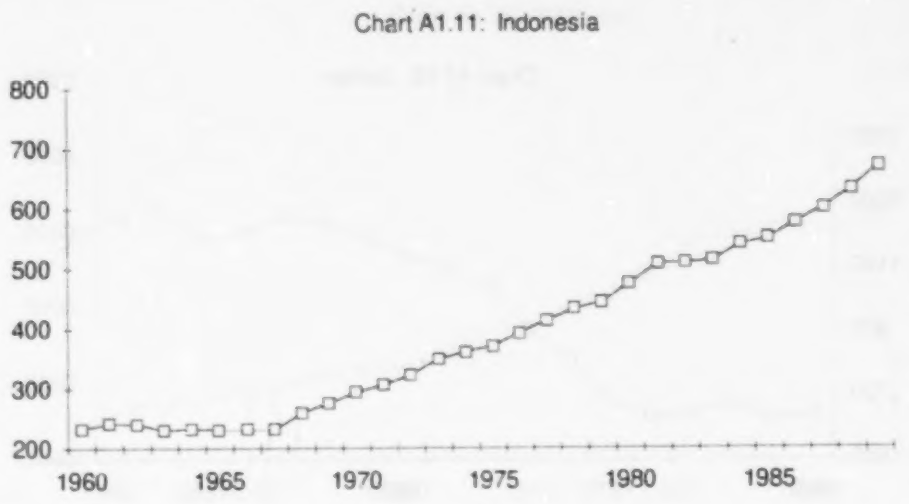


Chart A1.11: Indonesia
800
700
600
500
400
300
200
1960
1965
1970
1975
1980
1985

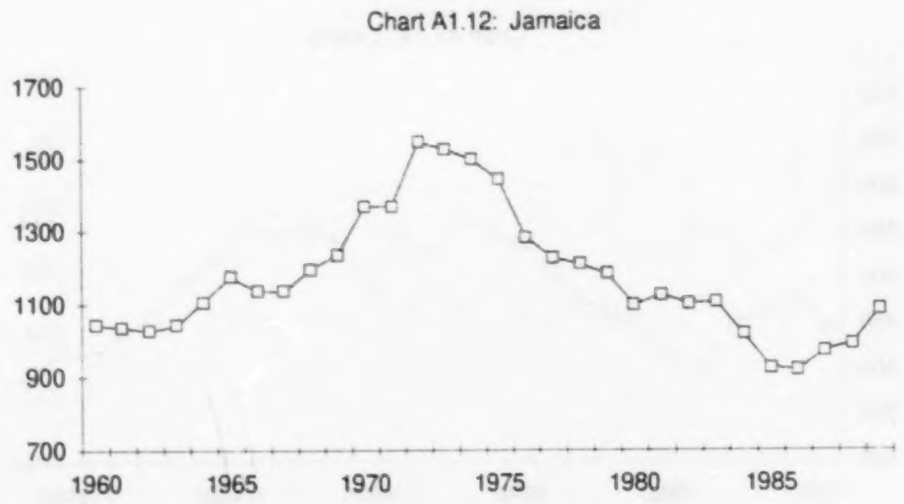


Chart A1.12: Jamaica
1700
1500
1300
1100
900
700
1960
1965
1970
1975
1980
1985

Chart A1.13: Jordan

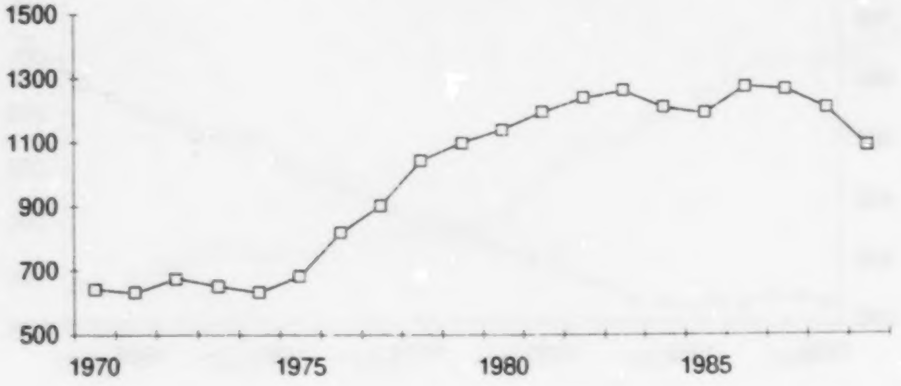


Chart A1.14: Liberia

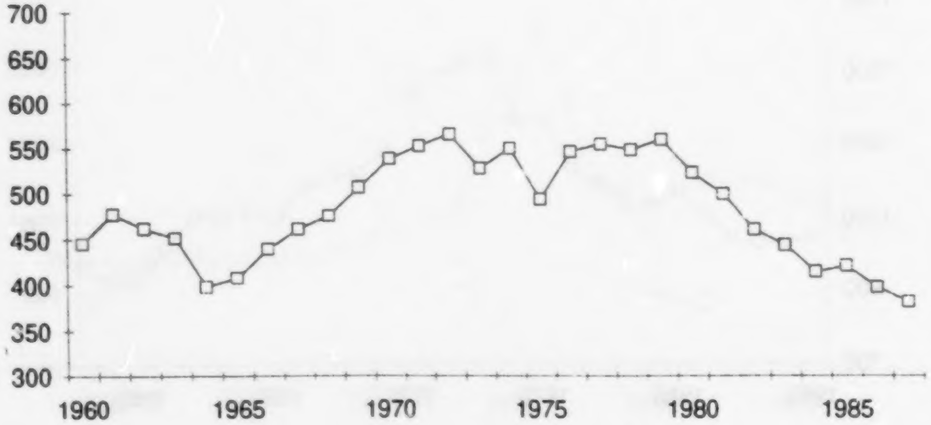


Chart A1.15: Malaysia

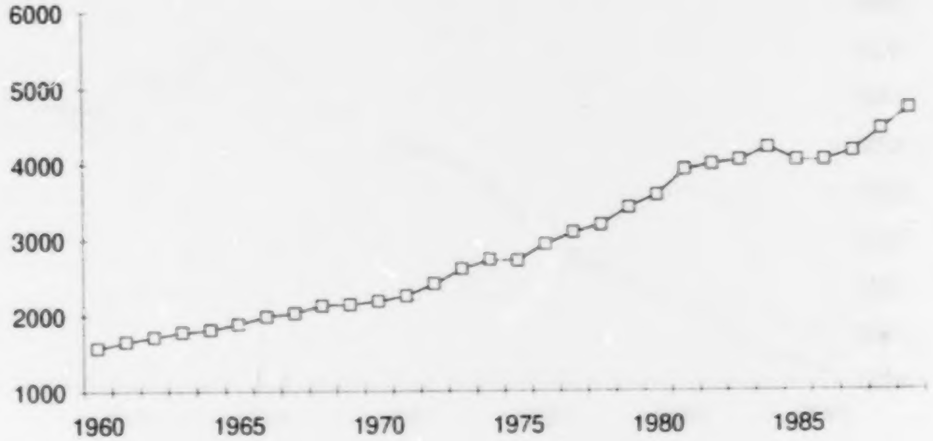
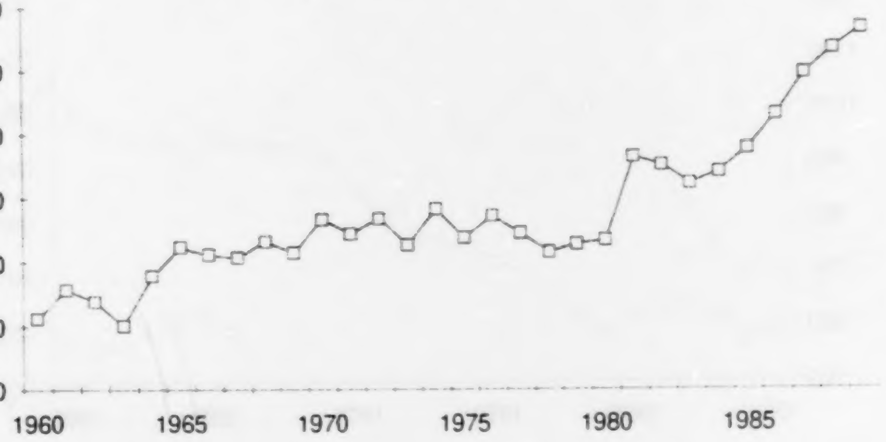


Chart 1.16: Mauritania



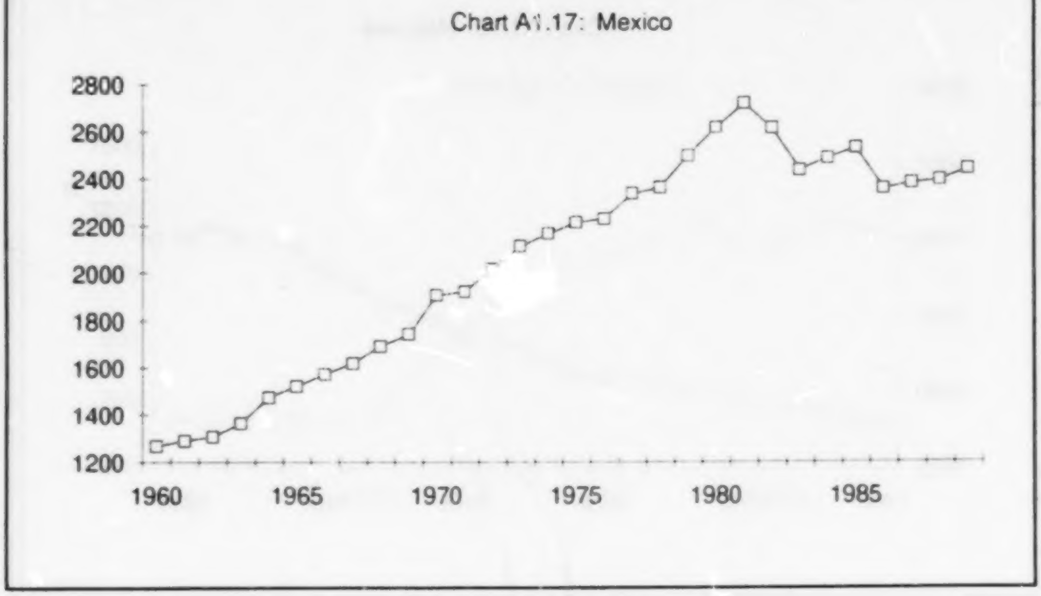


Chart A1.17: Mexico
2800
2600
2400
2200
2000
1800
1600
1400
1200
1960
1965
1970
1975
1980
1985

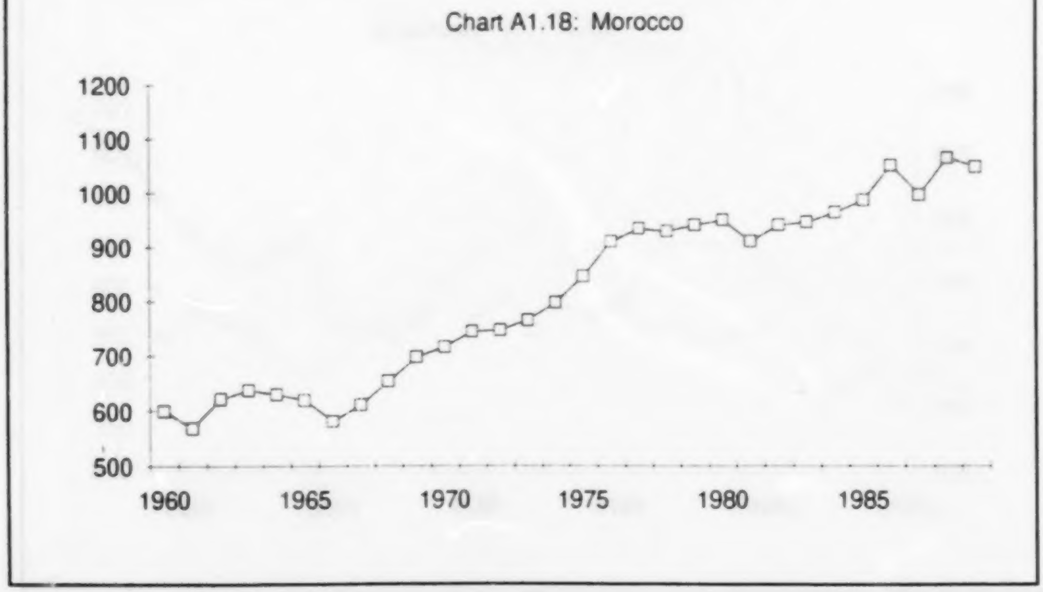


Chart A1.18: Morocco
1200
1100
1000
900
800
700
600
500
1960
1965
1970
1975
1980
1985

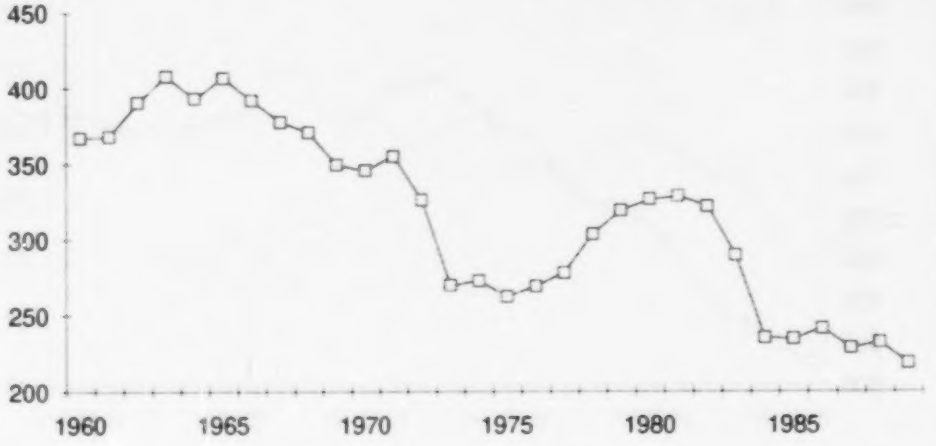


Chart A1.19: Niger

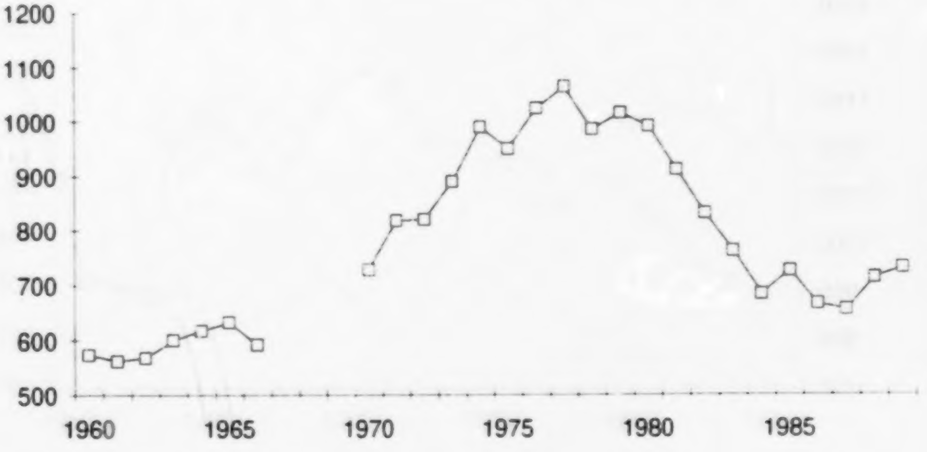


Chart A1.20: Nigeria

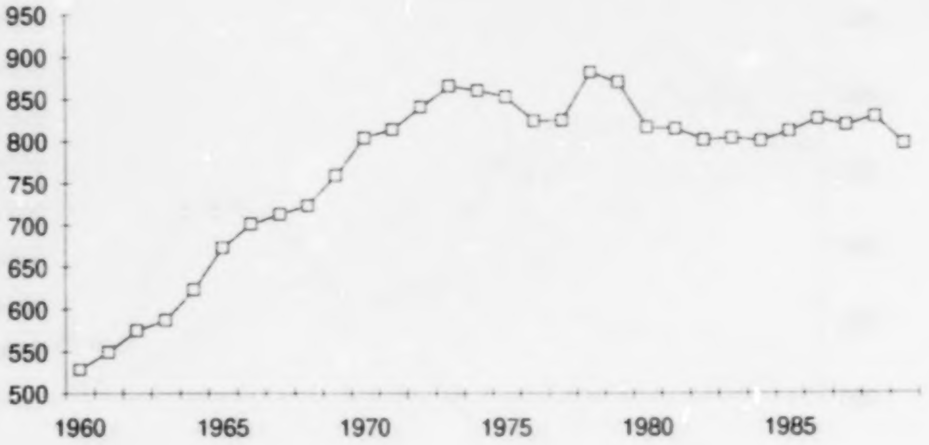


Chart A1.21: Papua New Guinea

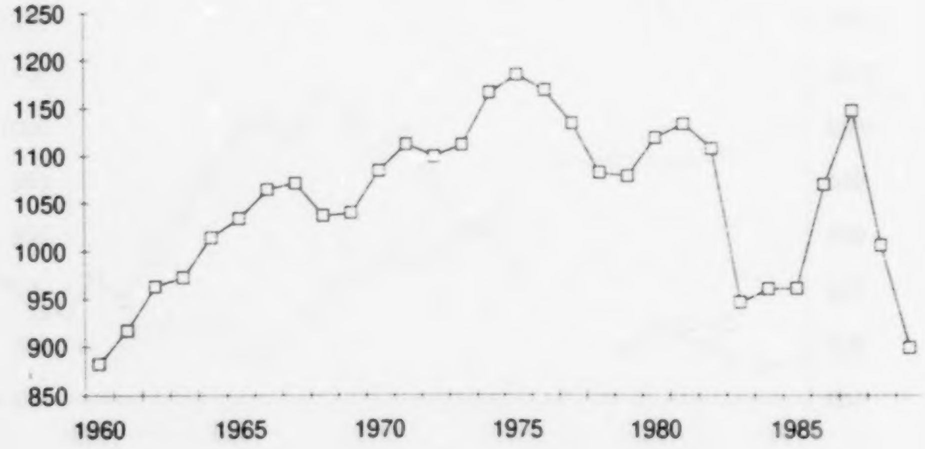


Chart A1.22: Peru

Chart A1.23: Sierra Leone

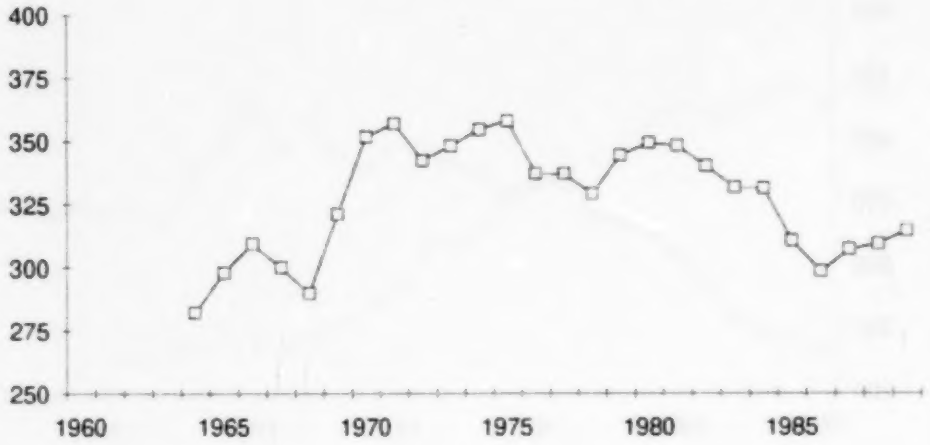
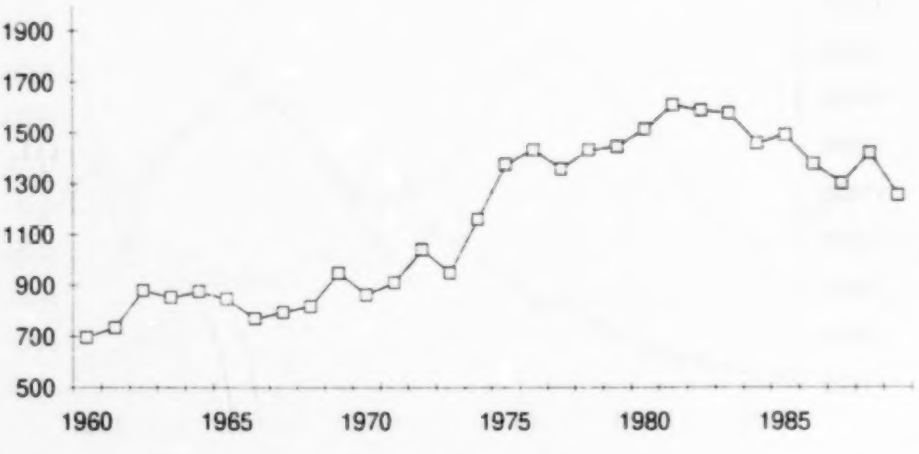


Chart A1.24: Syria



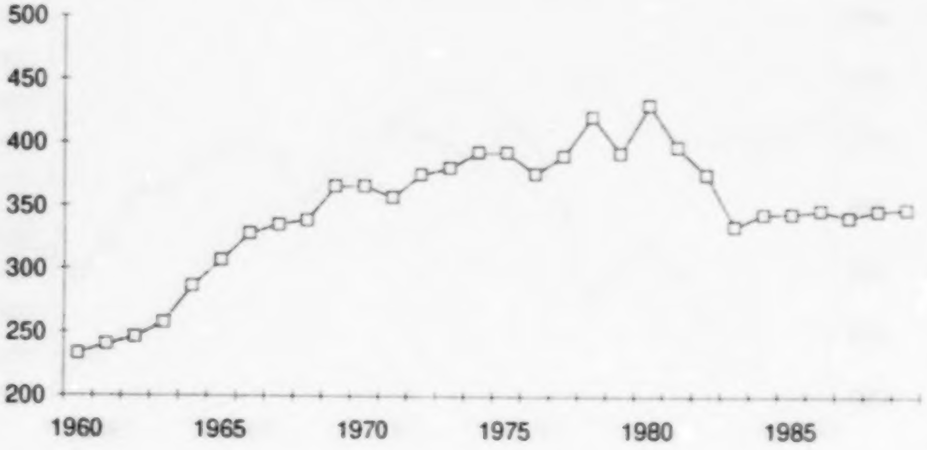


Chart A1.25: Togo

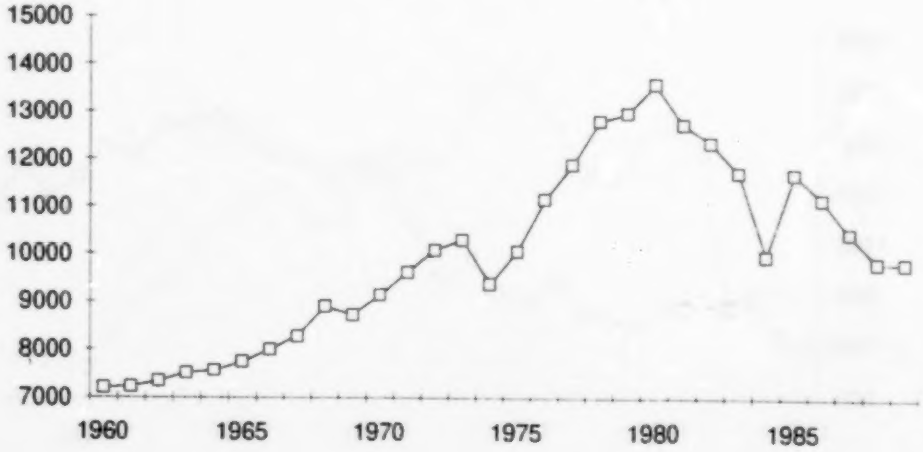


Chart A1.26: Trinidad

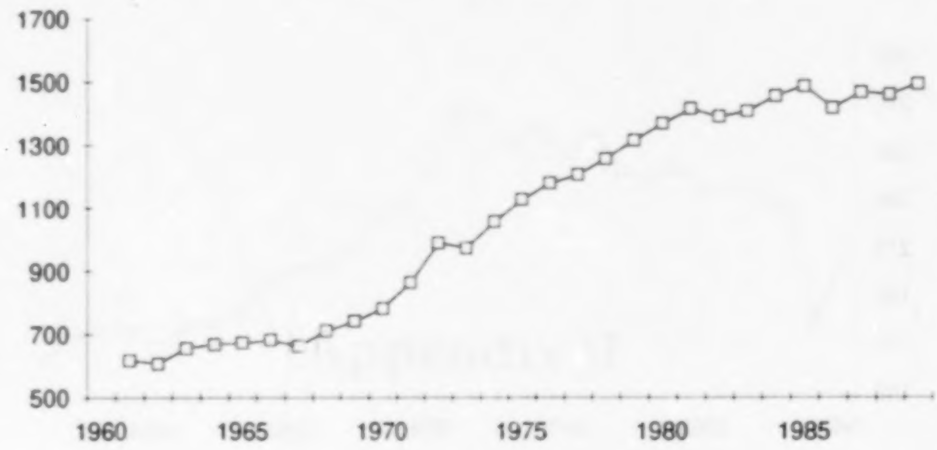


Chart A1.27: Tunisia

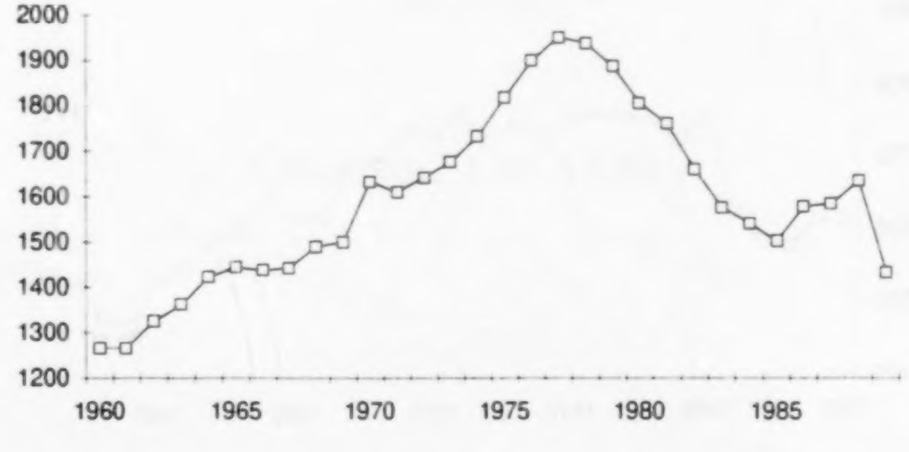


Chart A1.28: Venezuela

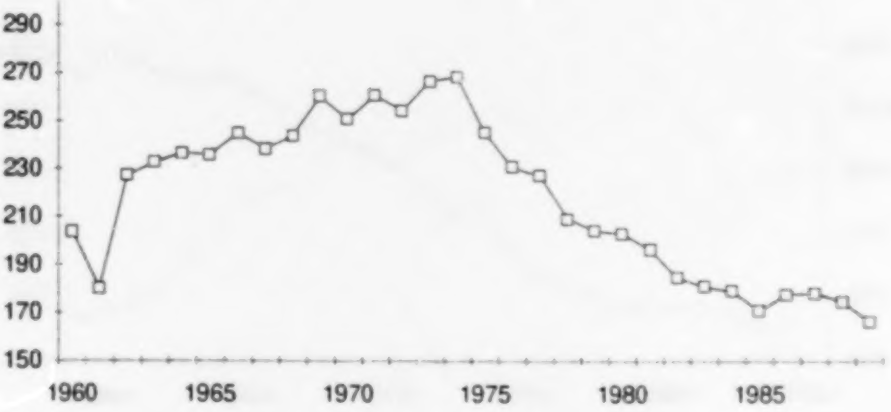


Chart A1.29: Zaire

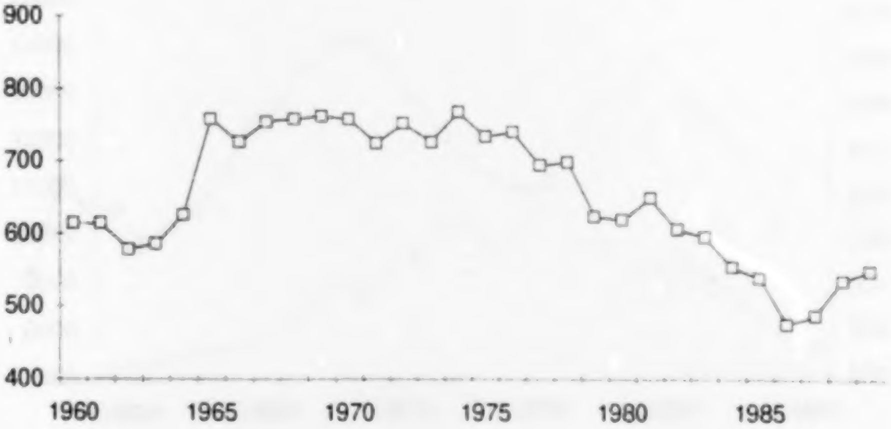


Chart A1.30: Zambia

Appendix II

OFFICIAL AND BLACK MARKET EXCHANGE RATES: 1960–1989

(INDICES, 1965 = 100)

CHARTS A2.1 TO A2.30

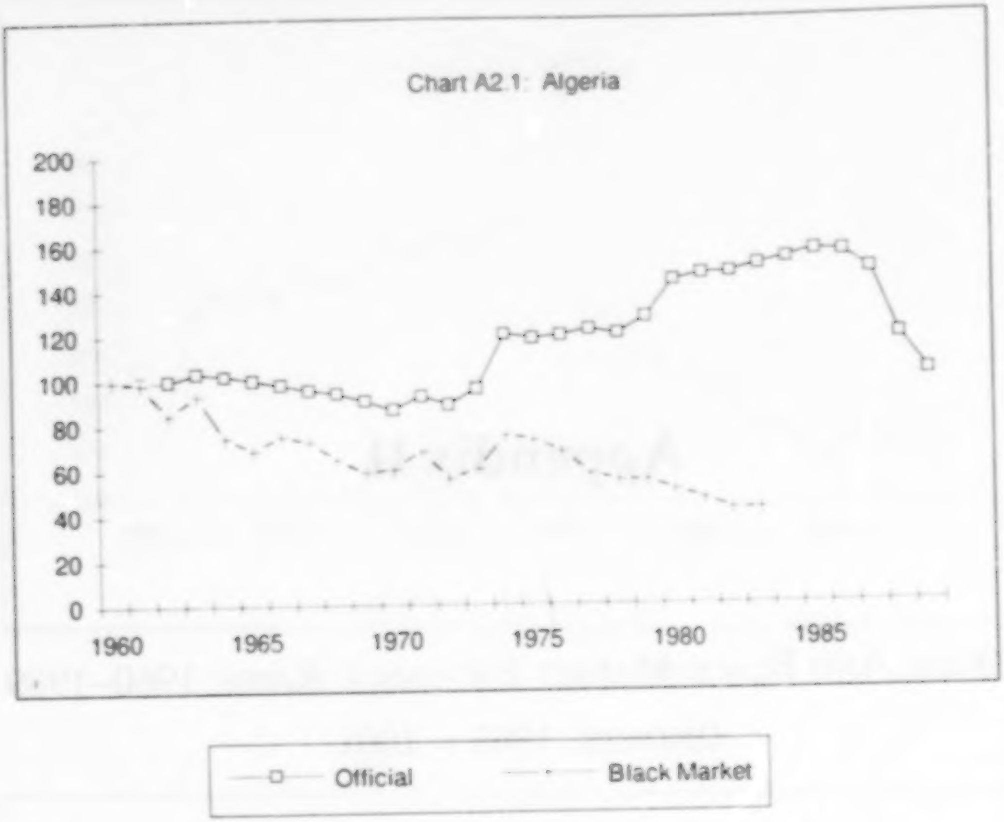


Chart A2.1: Algeria

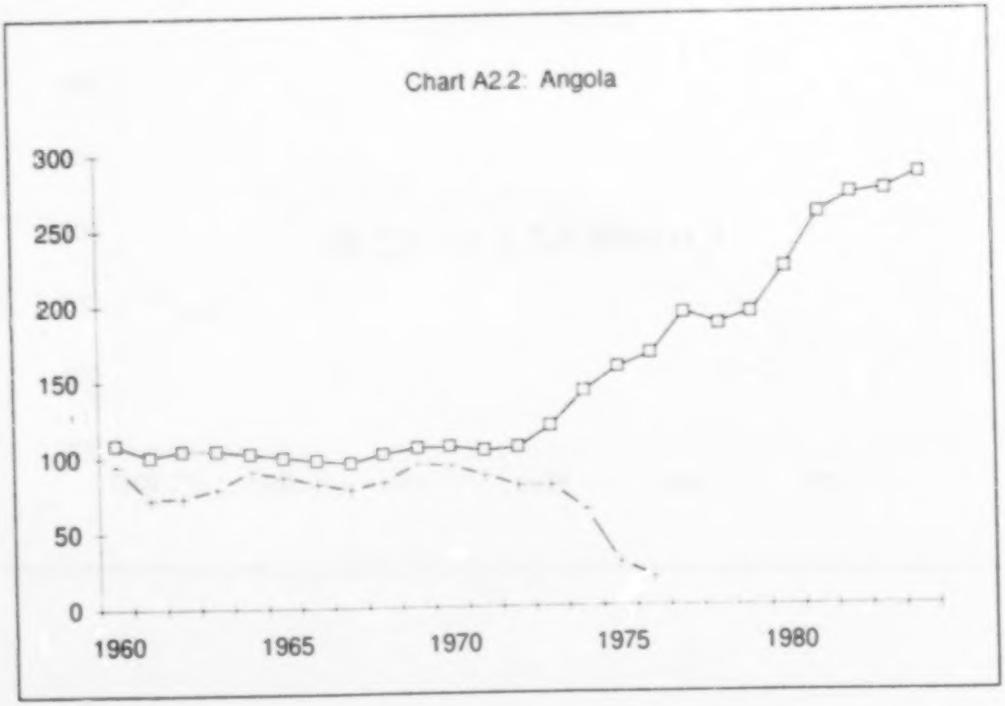


Chart A2.2: Angola

Chart A2.3: Bolivia

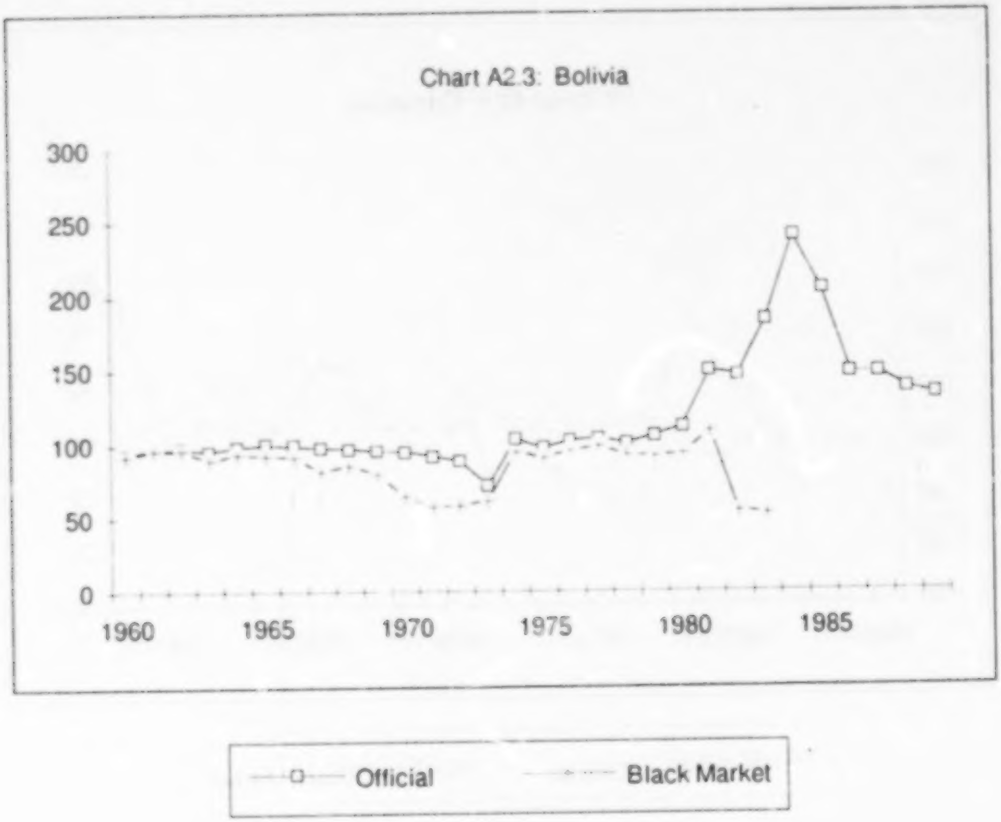
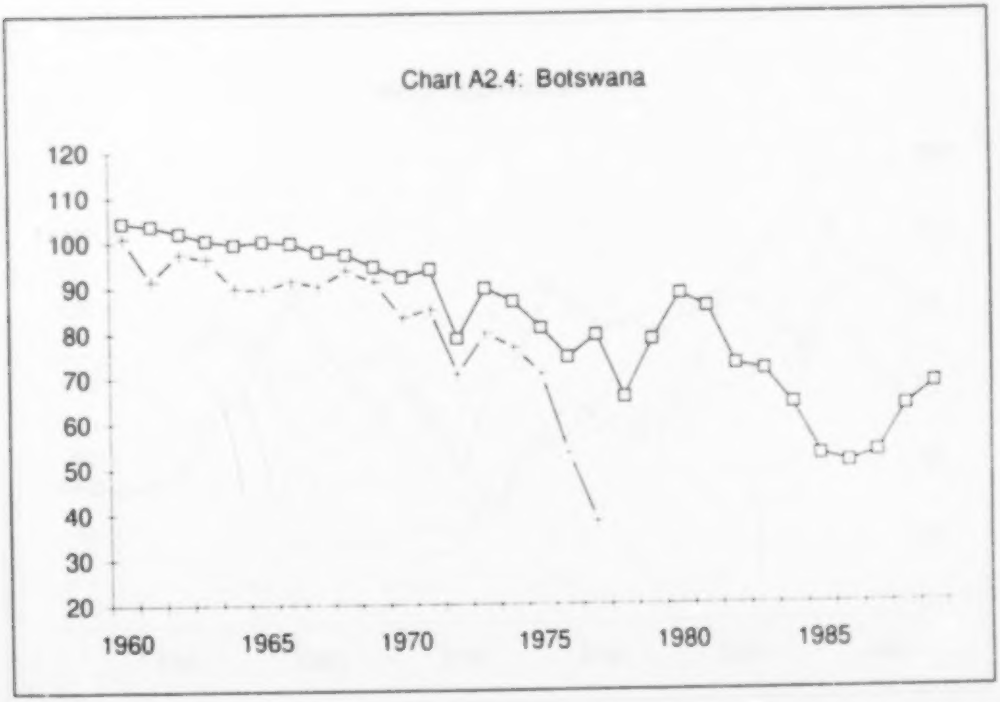


Chart A2.4: Botswana



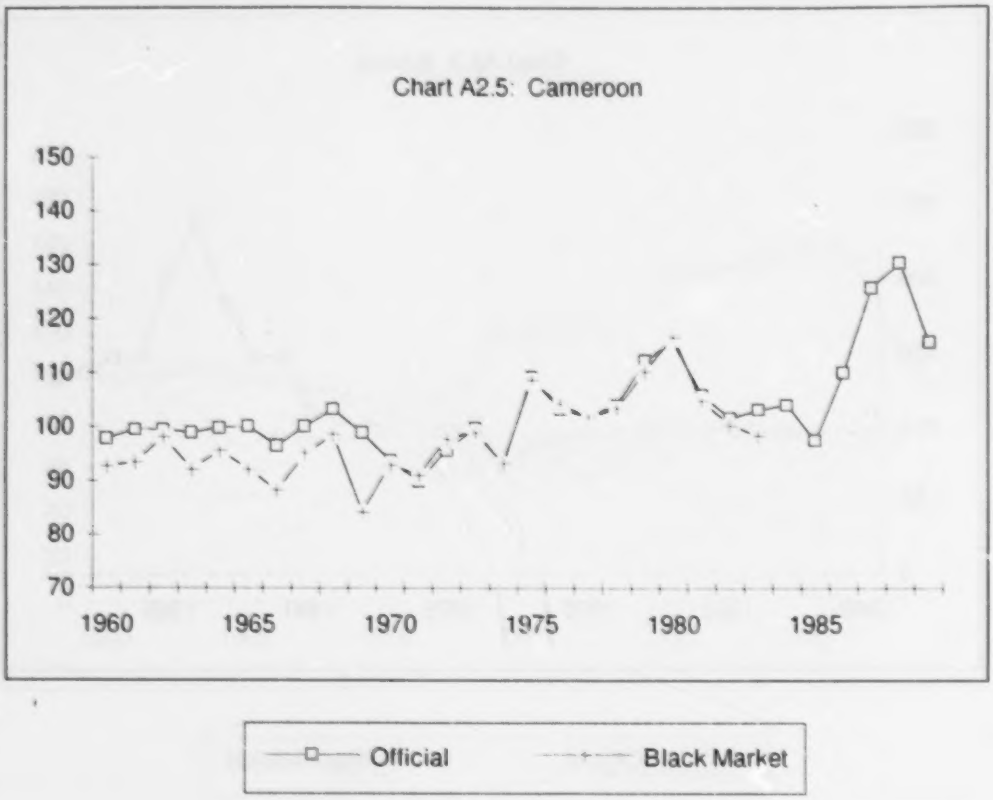


Chart A2.5: Cameroon

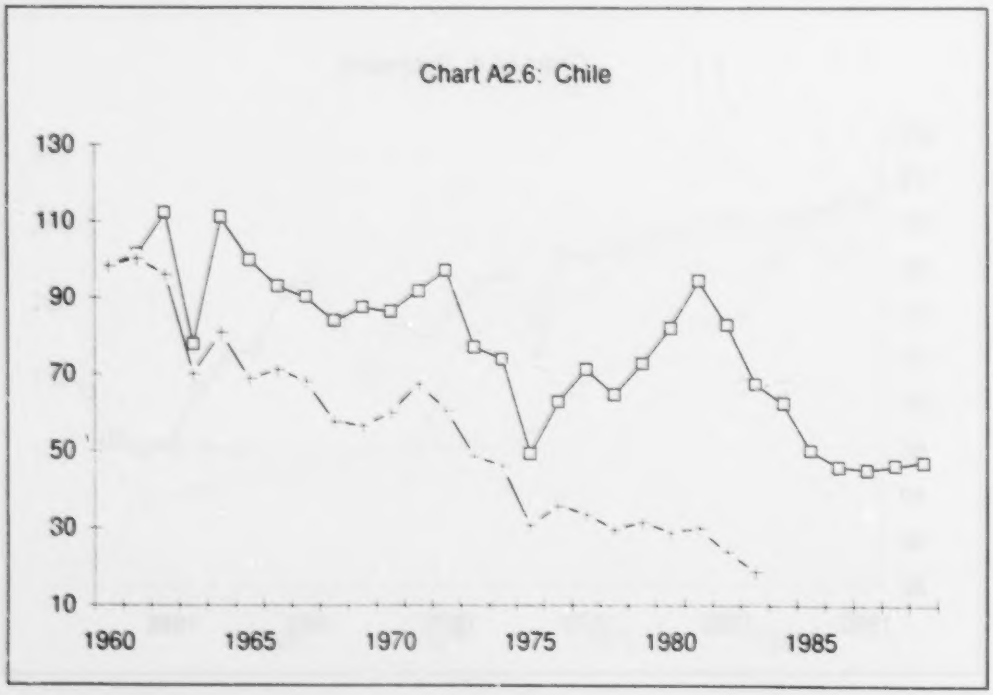


Chart A2.6: Chile

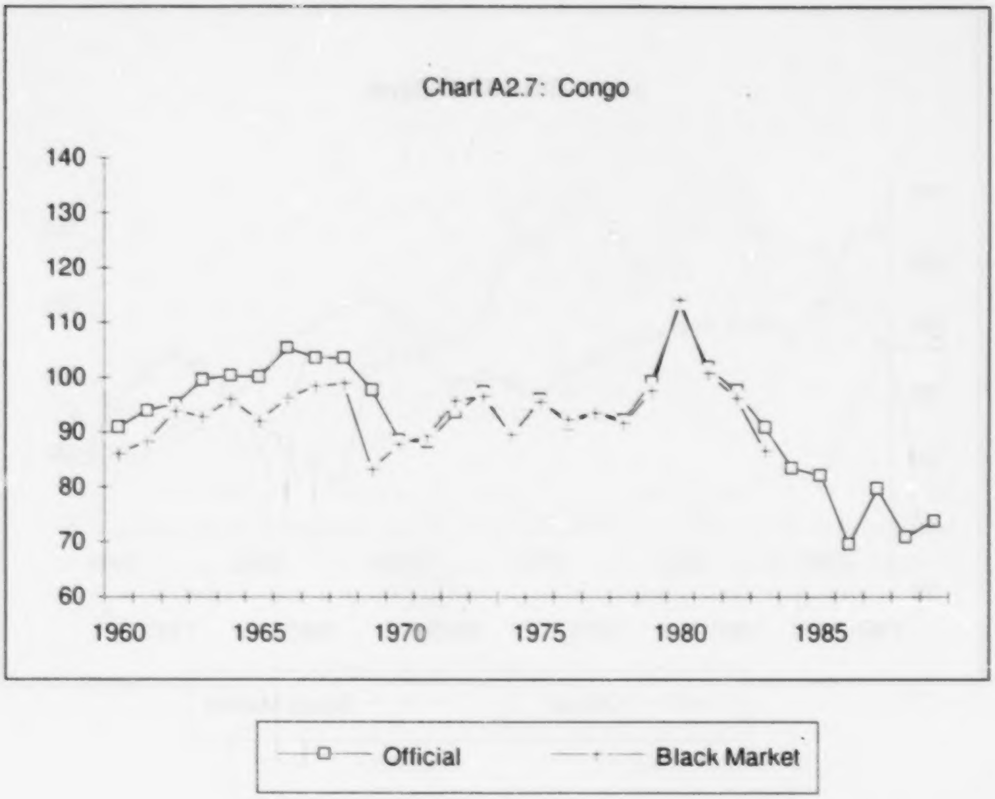


Chart A2.7: Congo

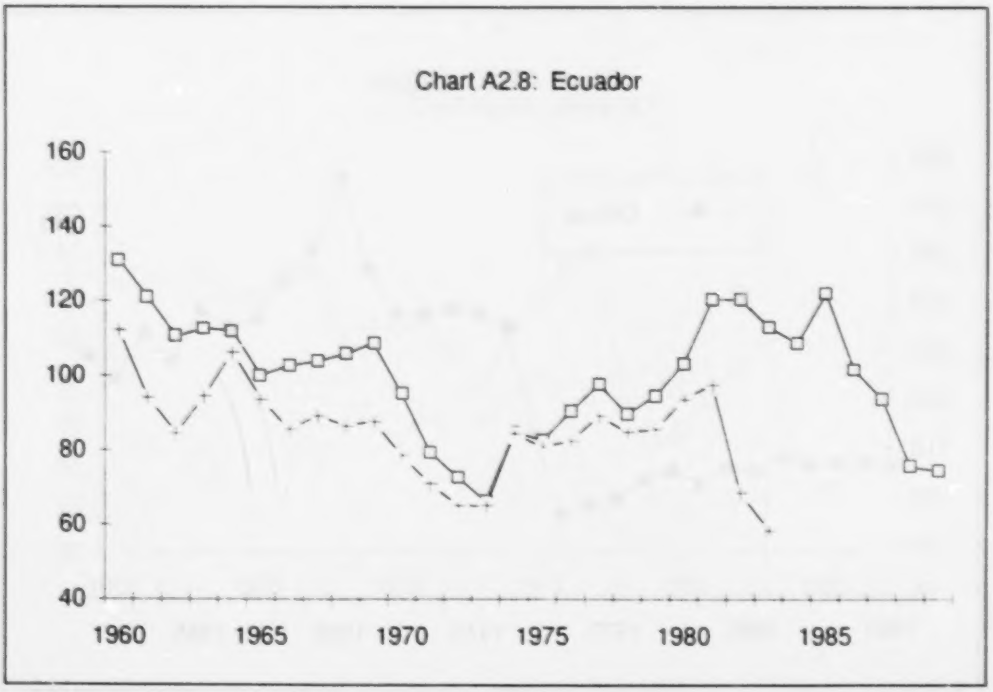


Chart A2.8: Ecuador

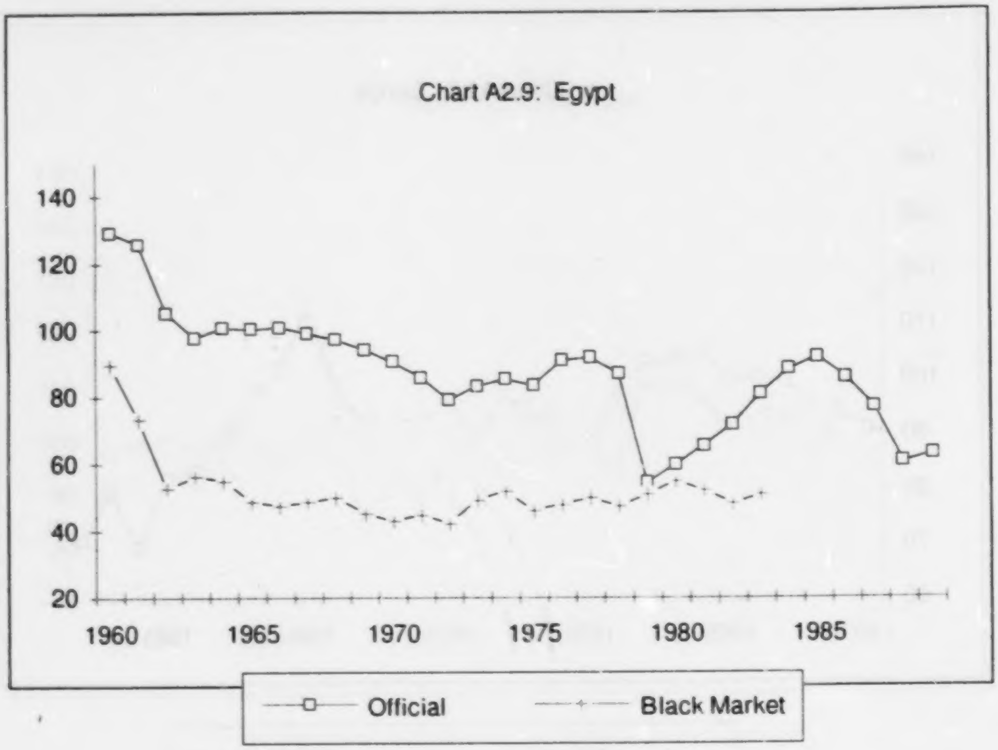


Chart A2.9: Egypt
140
120
100
80
60
40
20
1960
1965
1970
1975
1980
1985
Official
Black Market

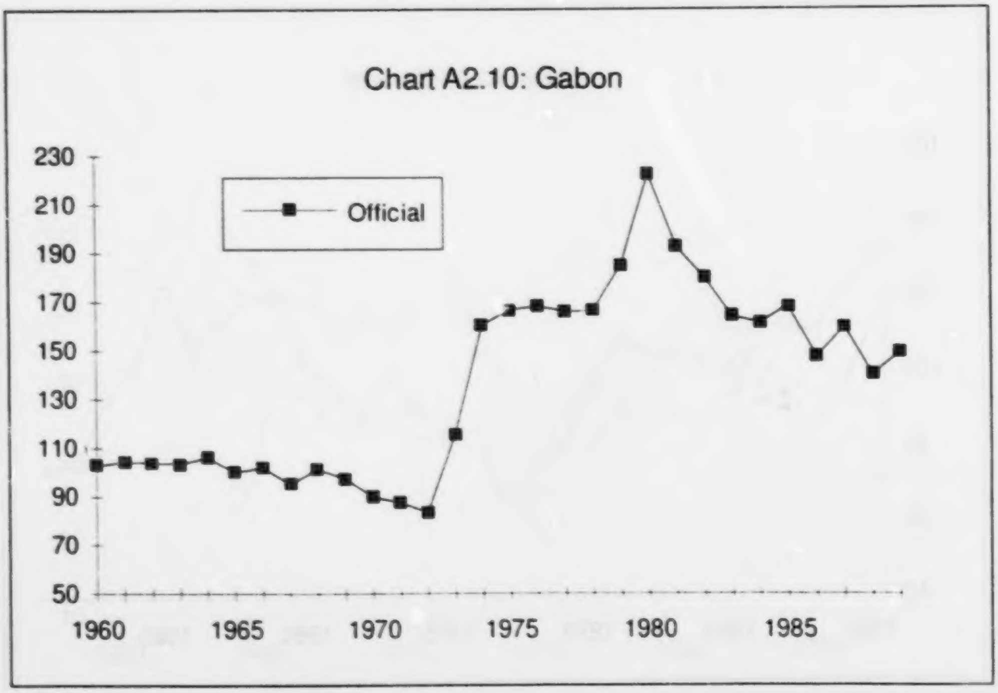


Chart A2.10: Gabon
230
210
190
170
150
130
110
90
70
50
1960
1965
1970
1975
1980
1985
Official

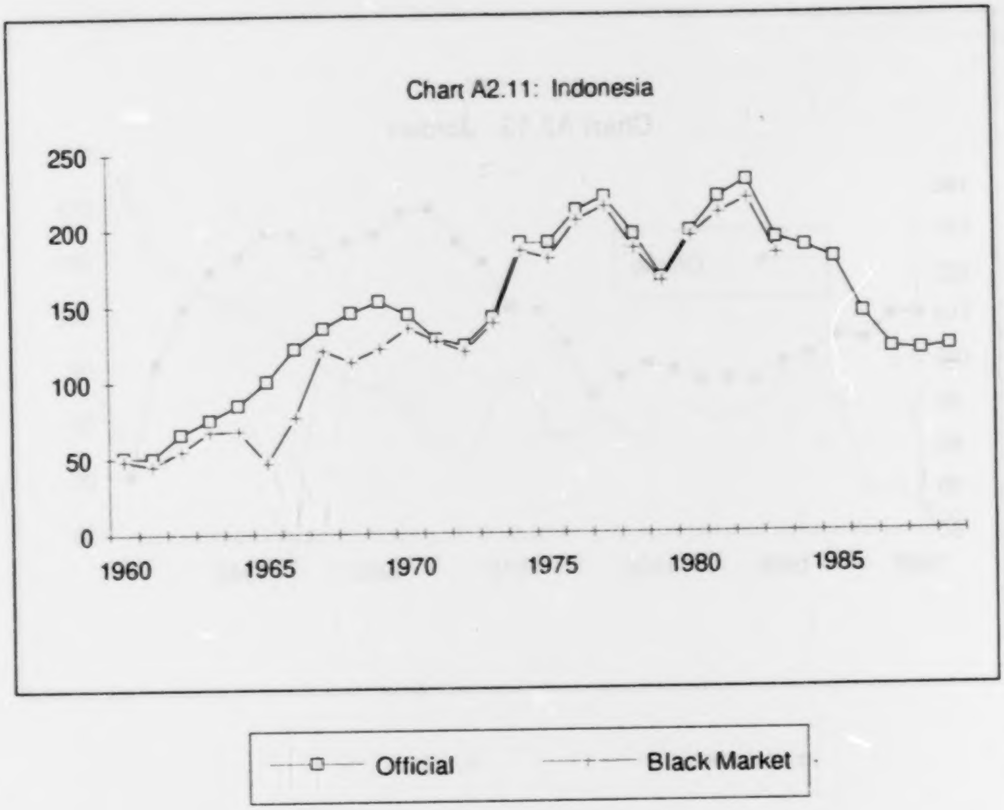


Chart A2.11: Indonesia

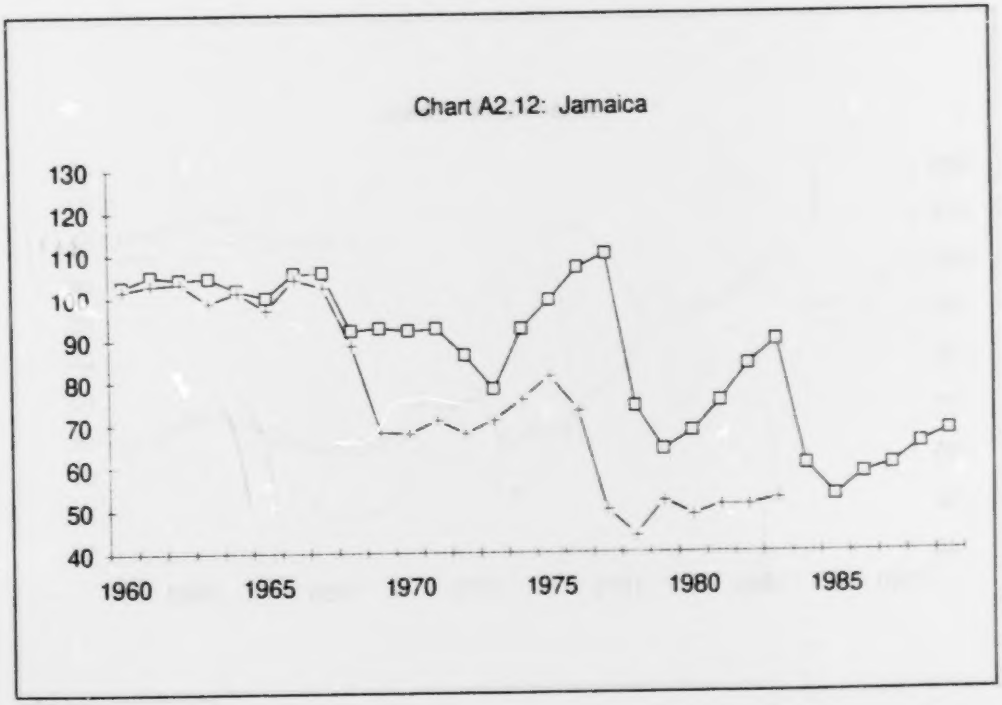


Chart A2.12: Jamaica

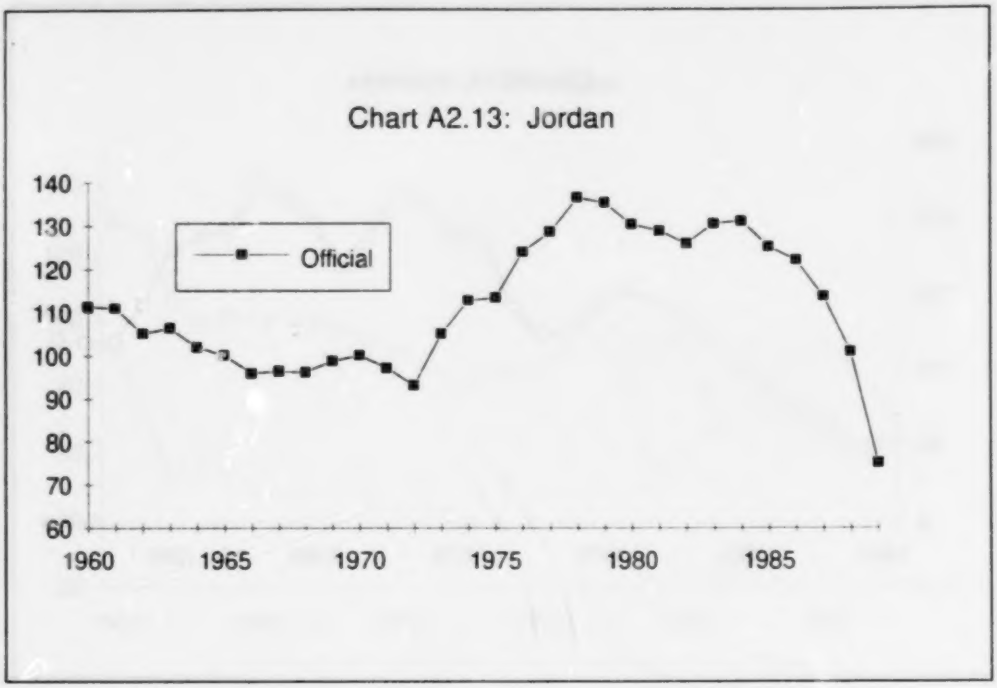


Chart A2.13: Jordan

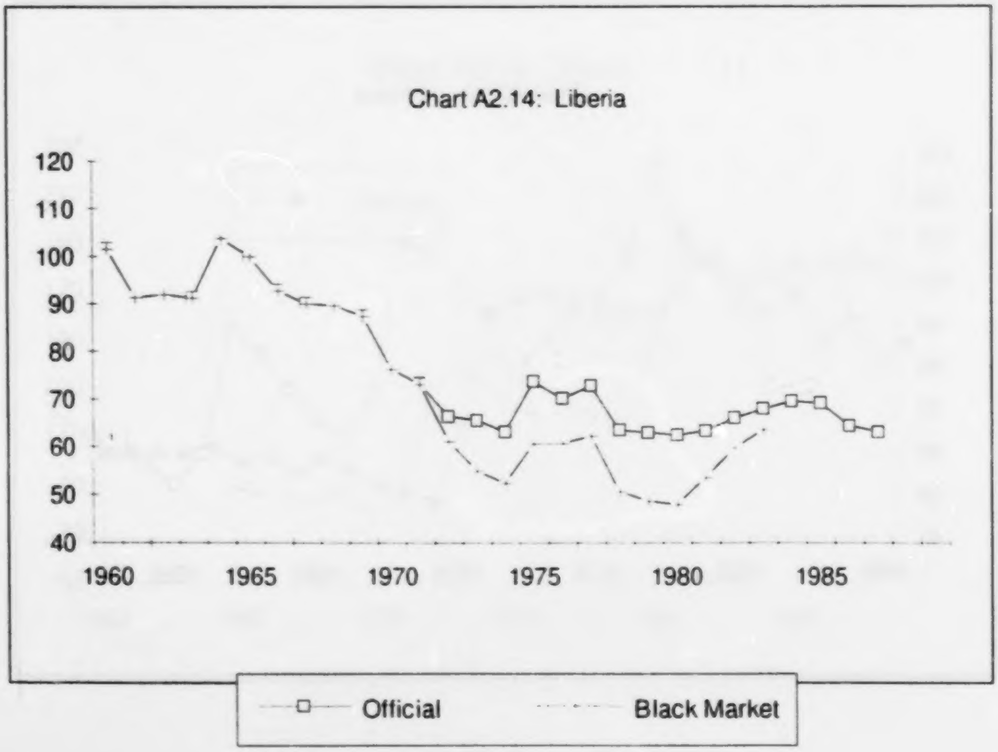


Chart A2.14: Liberia

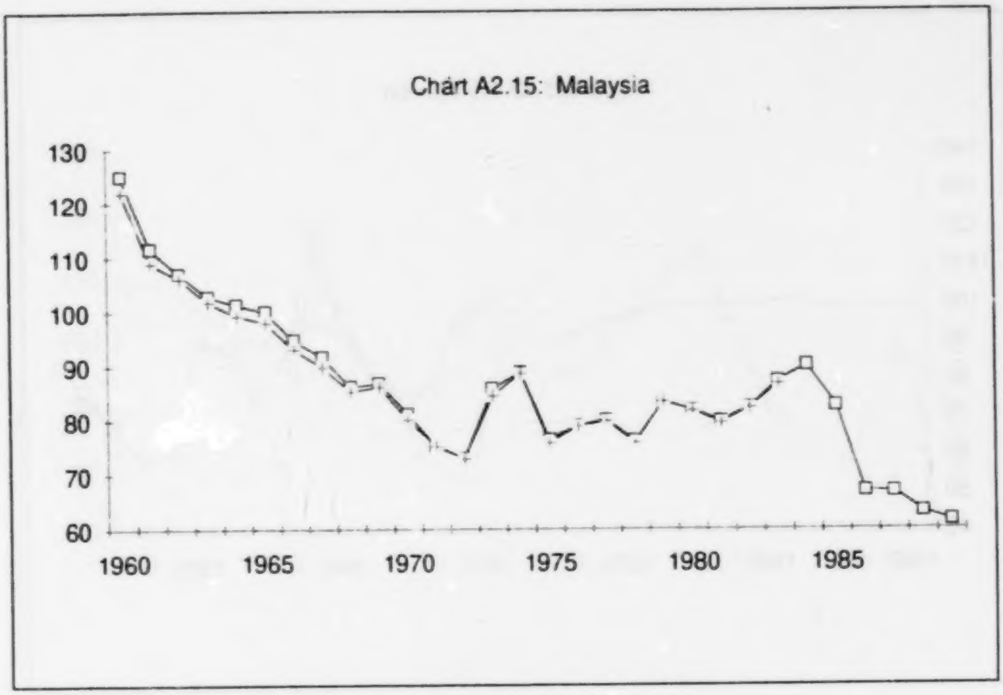


Chart A2.15: Malaysia

—□— Official —+— Black Market

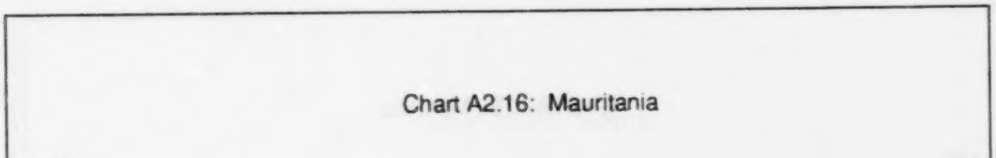


Chart A2.16: Mauritania

Chart A2.17: Mexico

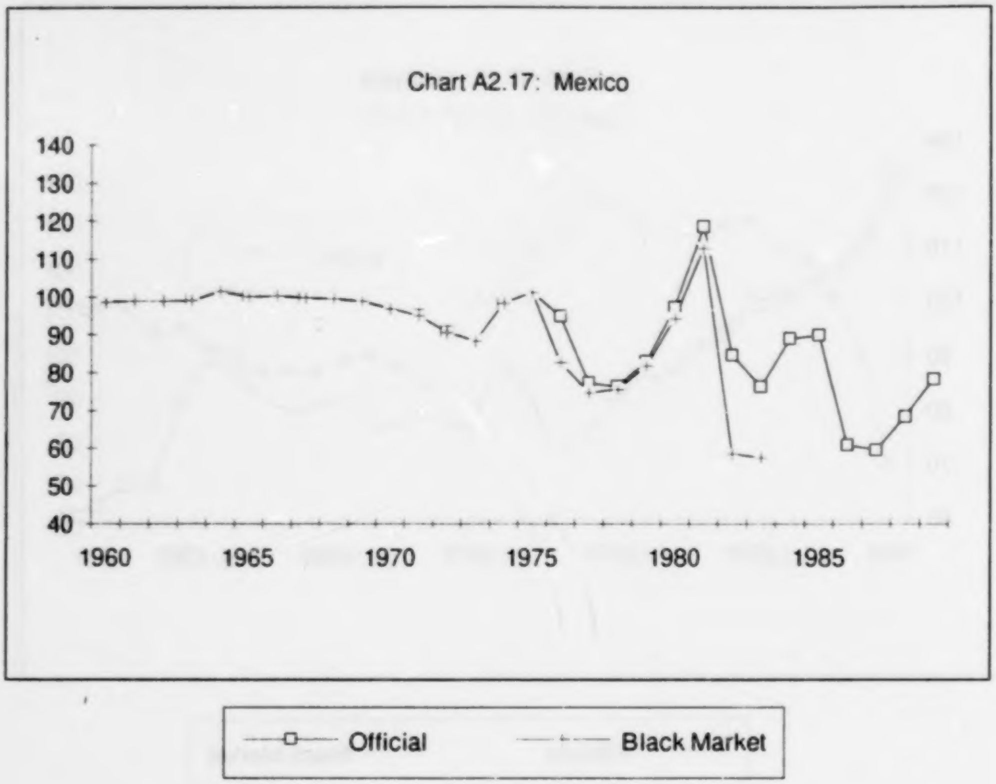
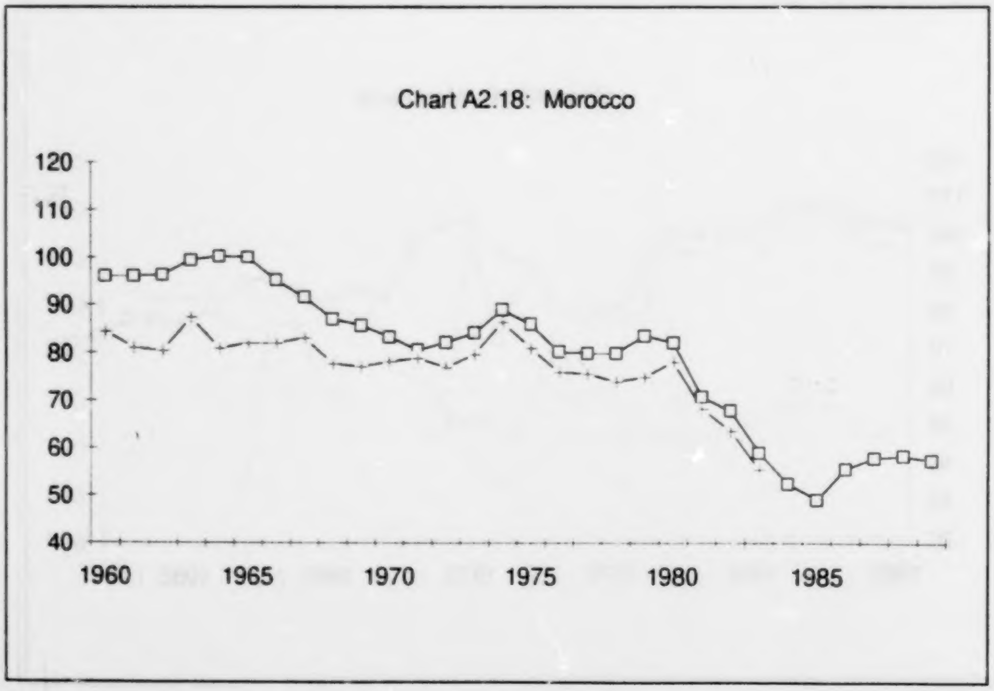


Chart A2.18: Morocco



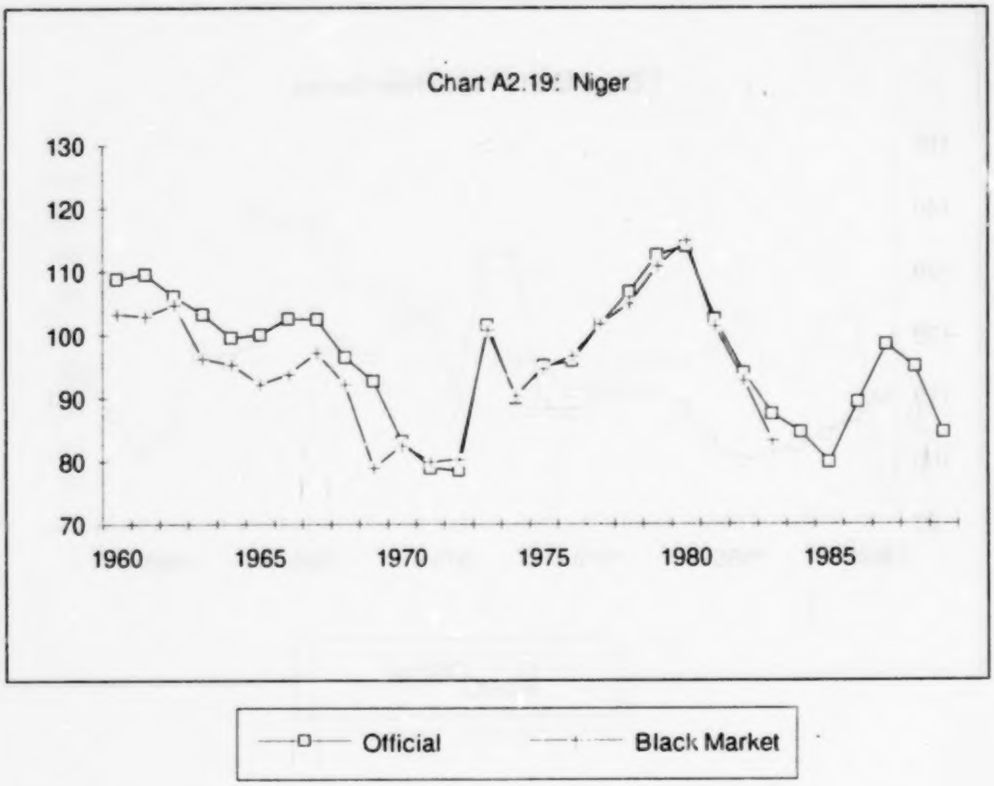


Chart A2.19: Niger

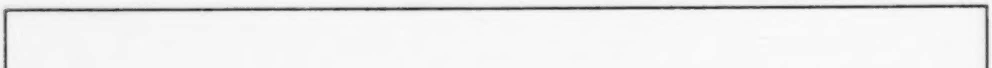


Chart A2.20: Nigeria

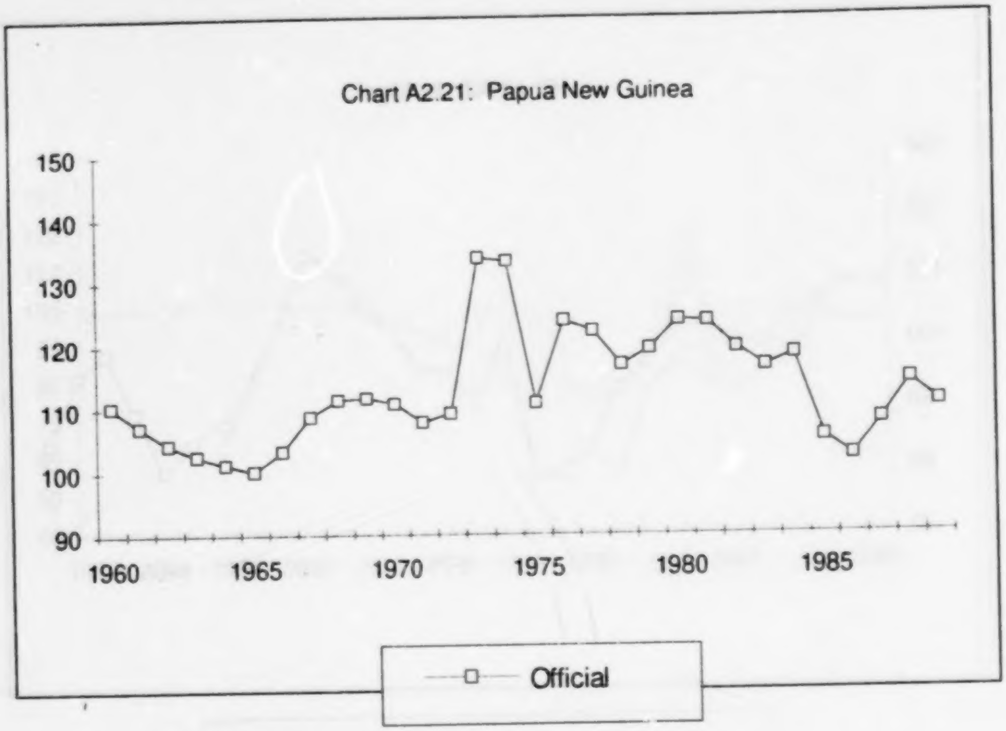


Chart A2.21: Papua New Guinea
150
140
130
120
110
100
90
1960
1965
1970
1975
1980
1985
Official

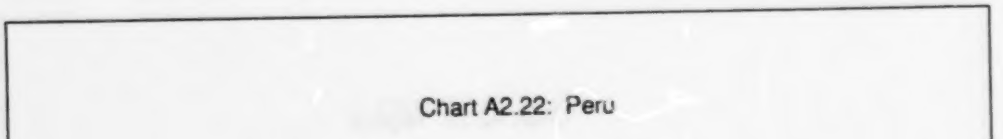


Chart A2.22: Peru
120
110
100
90
80
70
60
50
40
1960
1965
1970
1975
1980
1985
Official
Black Market

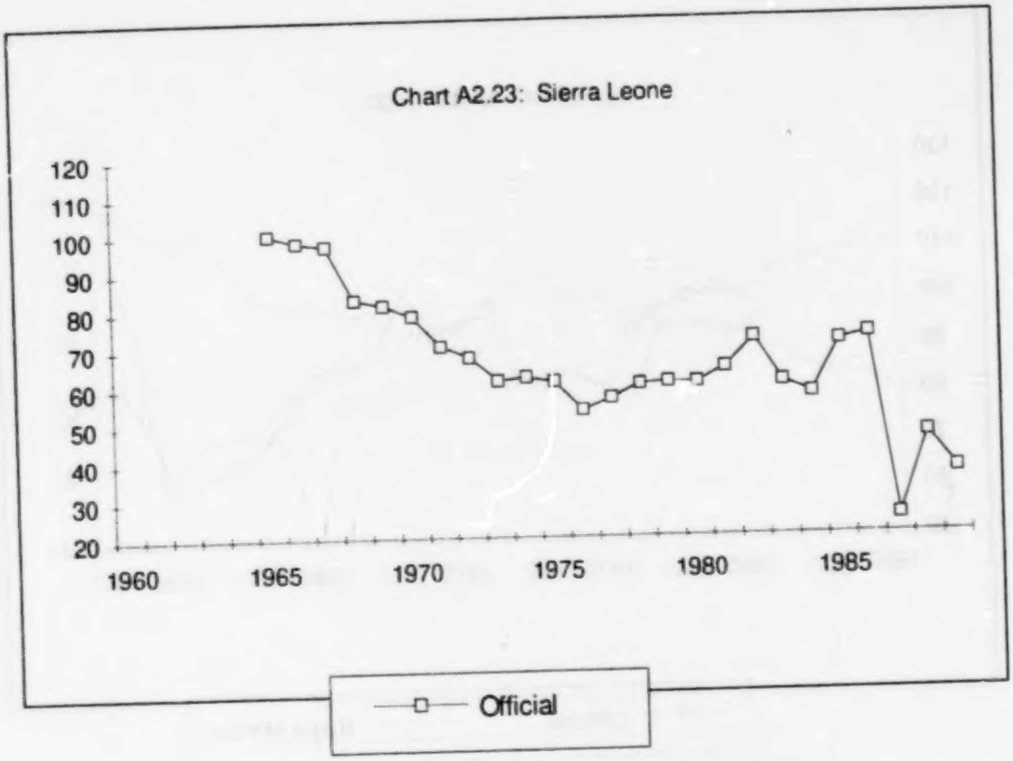


Chart A2.23: Sierra Leone

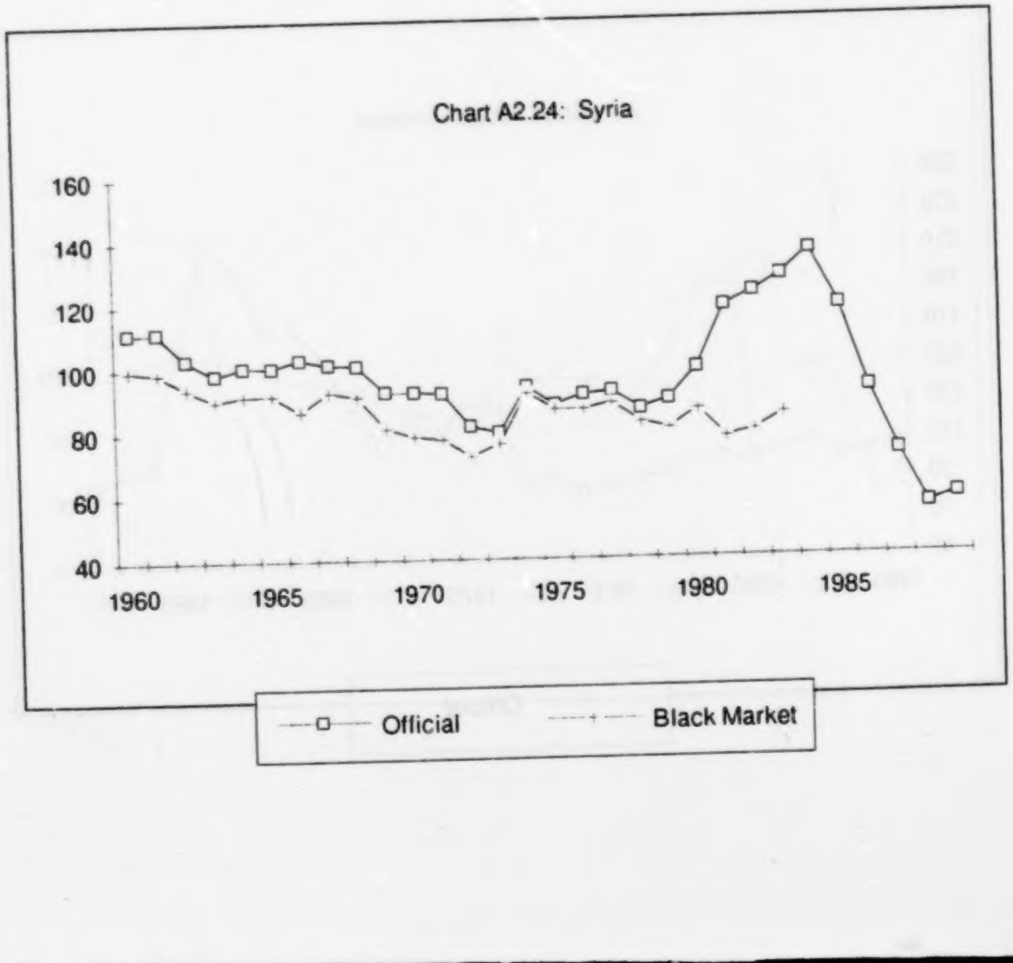


Chart A2.24: Syria

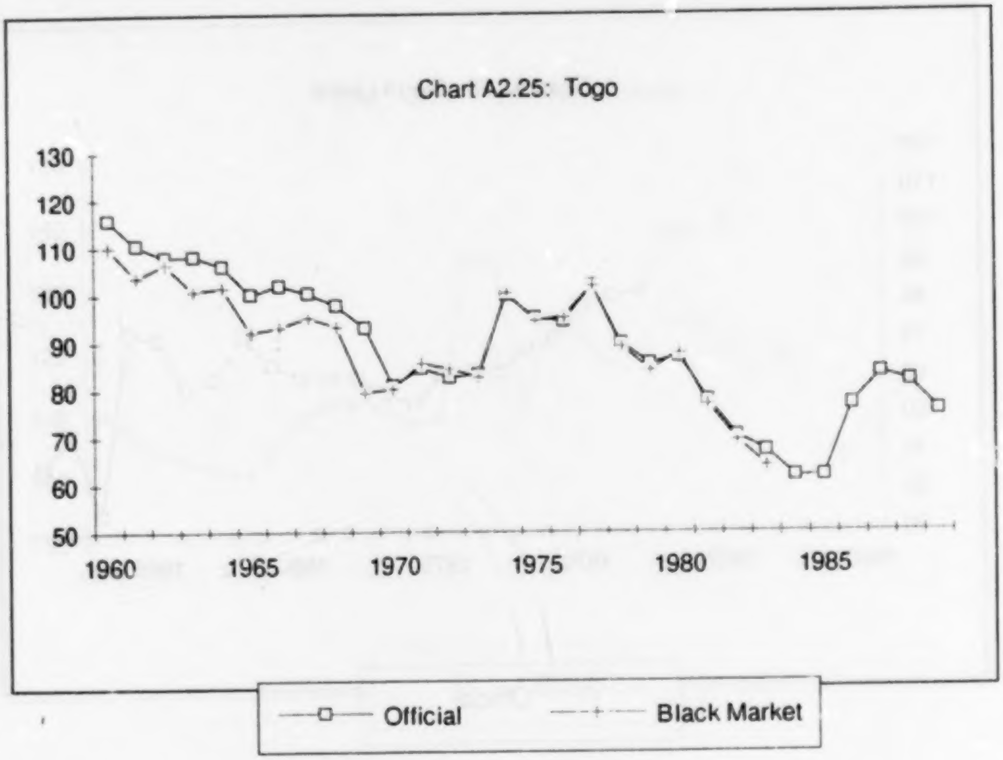


Chart A2.25: Togo

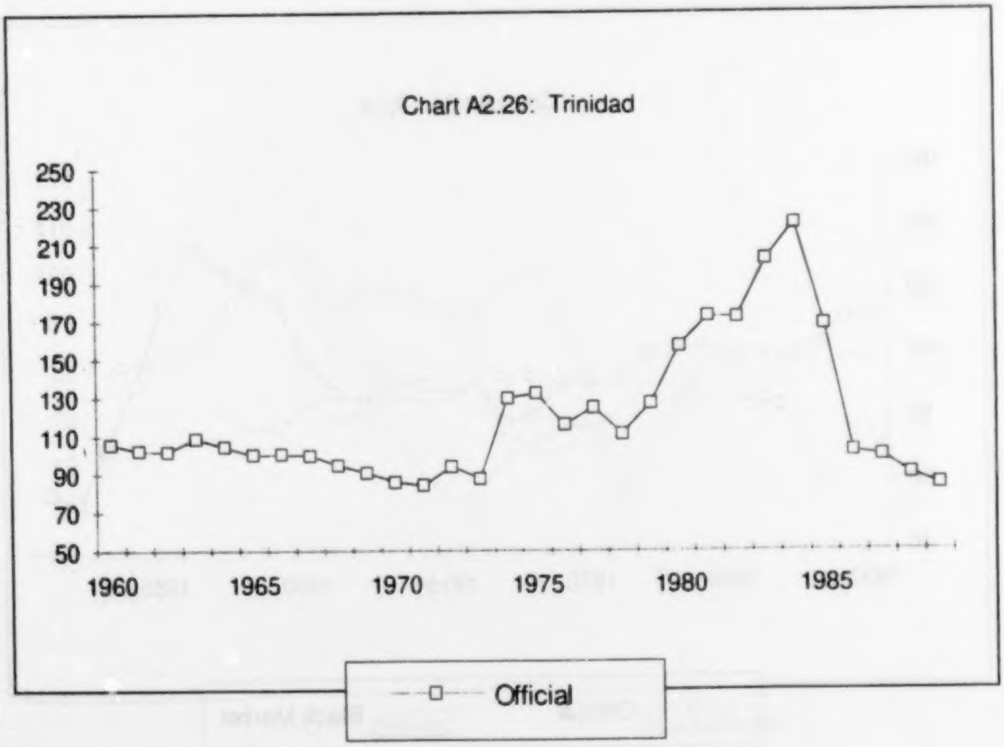


Chart A2.26: Trinidad

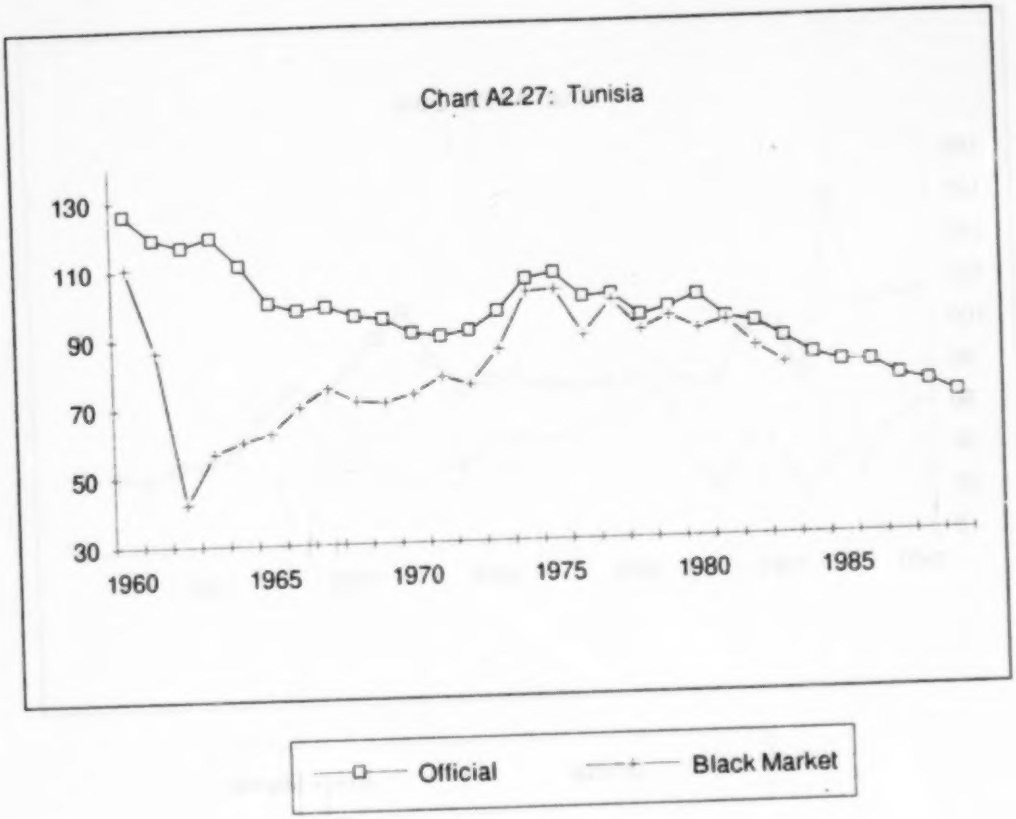


Chart A2.27: Tunisia

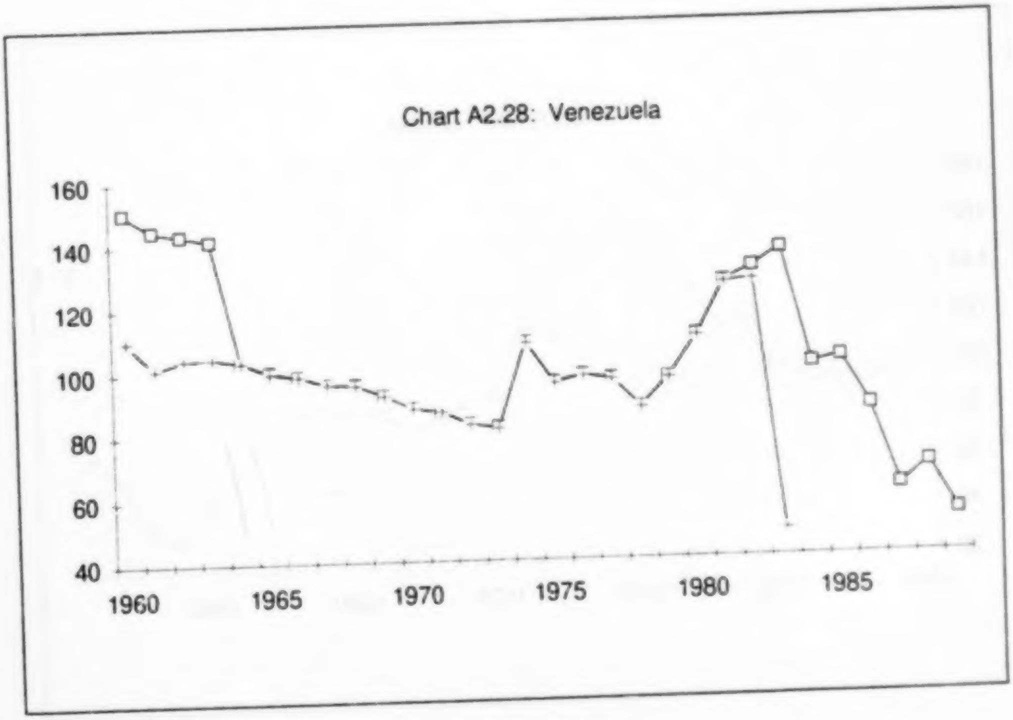


Chart A2.28: Venezuela

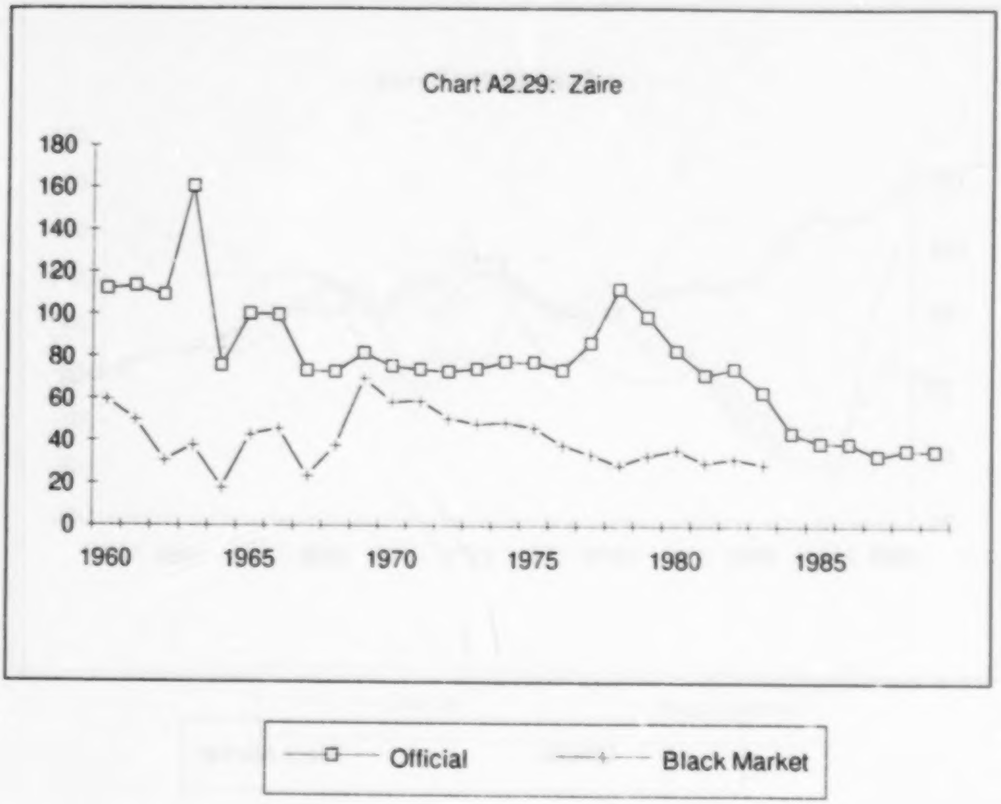


Chart A2.29: Zaire

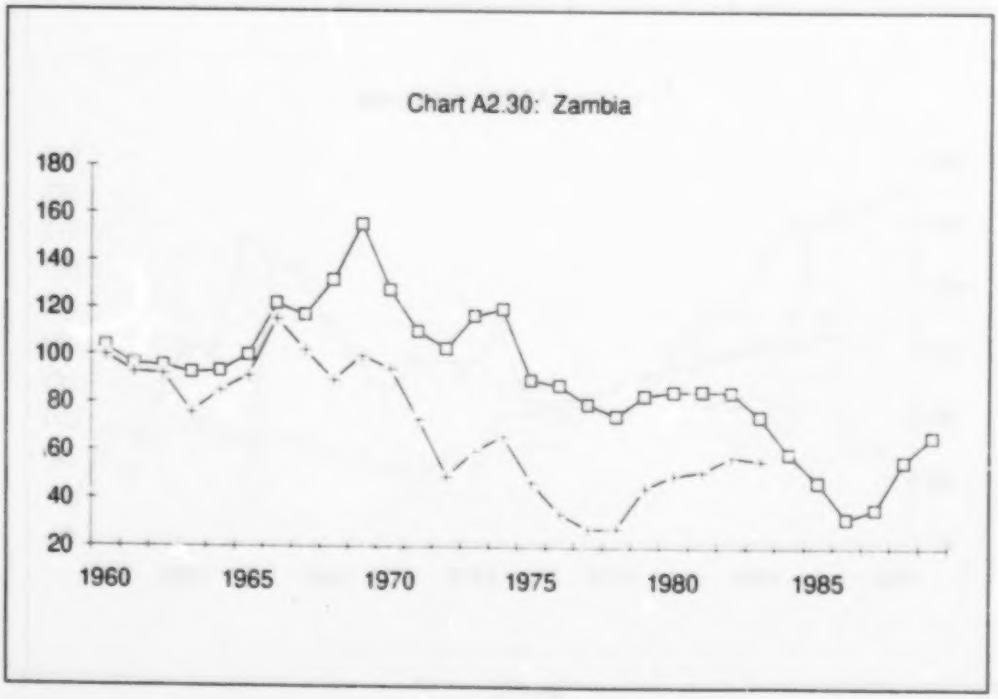


Chart A2.30: Zambia